

# Thoughts and Discussions on Evaluating Older Existing Buildings from a Code Perspective



CROFT



# CASE STUDY

## W.R. Stewart Project Dublin, Georgia

### KEY TAKEAWAY and DISCUSSION POINTS:

- Consider the Design for New Renovation in the context of “Original” Design Code
  - A Pathway for Code Compliance is Not Always Obvious
- Considered Pre-Design Evaluation vs. Project Budget and Architect’s Scope of Work
  - Existing Drawings are Invaluable + Document Code Decisions for Future Use

# INITIAL DESIGN

## Original Program and Budget:

- Existing Building to remain un-sprinklered
- Business Occupancy
- Remain Un-sprinklered

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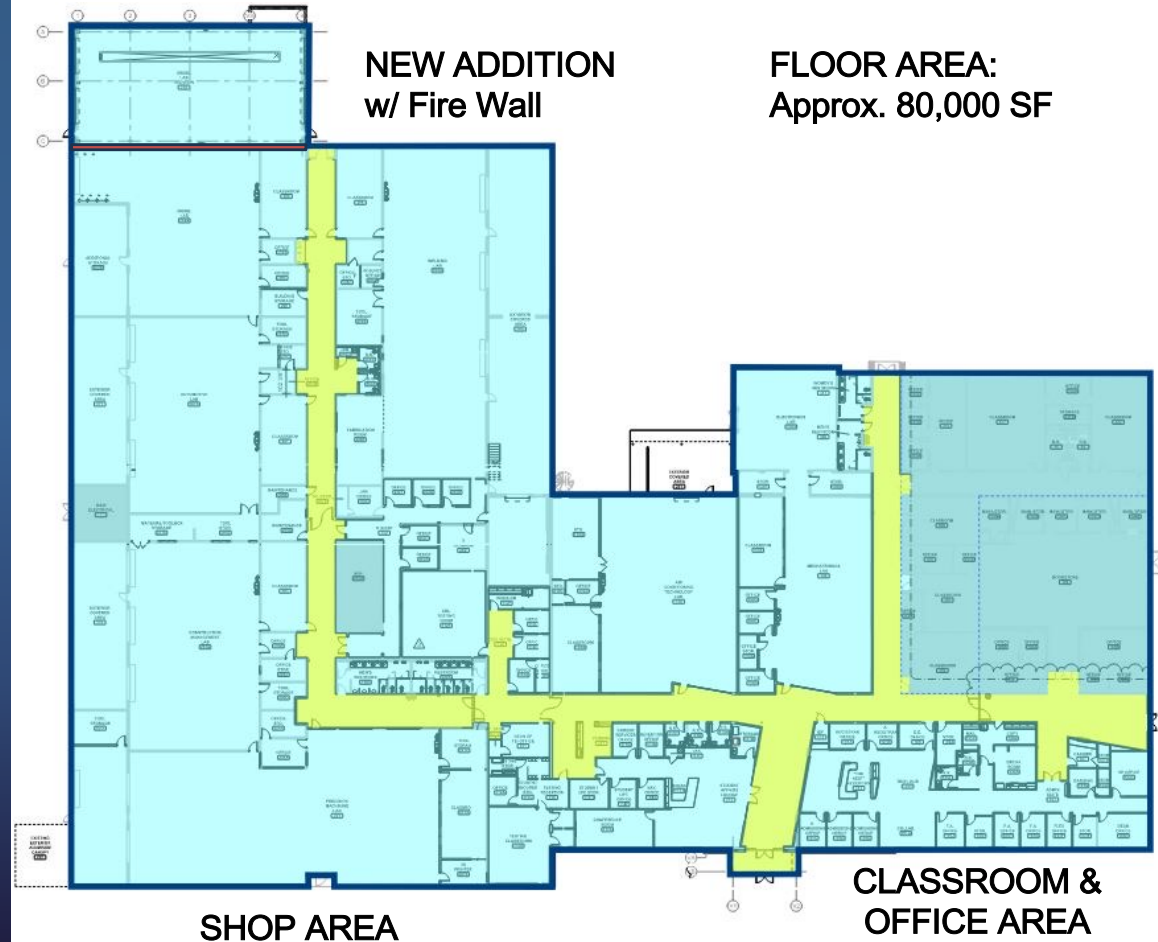
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## Schematic Floor Plan



# INITIAL DESIGN

## Original Program and Budget:

- Existing Building to remain un-sprinklered

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## Initial Design and Scope of Work - 2024:

- Initial Design submittals through Construction Documents stated that the existing building is a Business Occupancy per IBC and is to remain an un-sprinklered building.
- 2024 Building Area - approximately 80,000 SF - but Allowable Area for a single story un-sprinklered Business is 40,000 SF.

## Sprinkler System Not Required??

- "IEBC Level 3 Alteration/Reconstruction work area within the existing building will not trigger meeting new construction height and area requirements and is permitted to remain as is."
- NFPA 101, Section 43.6 - The Work as a Reconstruction - Fire Sprinkler is required **IF** the applicable occupancy chapter for new requires sprinklers ....
- NFPA 101, 38.3.5 New Business Occupancy, there are no requirements for sprinkler system (unless a high-rise).

**Therefore, a fire sprinkler system not required.**

## Can the Building Remain not sprinklered?

- Need to understand how the building was originally designed from the code.
- What were the codes in effect at permit?
- What do the original construction drawings show?

# ORIGINAL CODE NFPA

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## **1982 Life Safety Code in Effect:**

- 1981 NFPA 101 Chapter 10 New Education occupancy

## **LSC Occupancy Classification:**

- 1981 NFPA 101, Section 10-6 Flexible Plan and Open Plan Buildings, allowed areas up to 30,000 SF.
- There appears to be four separated areas with smoke partitions along with a central corridor using 1-Hour walls for the original building.

# ORIGINAL CODE Standard Building Code

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## **1982 Building Code in Effect:**

- 1982 Standard Building Code - SBC

## **SBC Occupancy Classification:**

- Education Wing, probably SBC Group "C" - Education includes K-12 schools, Colleges and Universities.
- Technology Wing, probably SBC Group "G" - Industrial  
1982 Section 406.1 (d) - "Schools for vocational training shall be classified in the same occupancies and conform to the same requirements as the trade or vocation taught ..."

# STANDARD BUILDING CODE

# 1982 SBC Code Summary

**Construction Type:**

- ◆ Construction Type IV Unprotected (equivalent to IBC Type IIB), the exterior / Interior bearing walls, columns and beams and roofs are required to be non-combustible construction

**SBC Allowable Area:**

- ◆ 1982 SBC Table 400 Allowable Area
  - Group "C" School, single story un-sprinklered - **12,000 SF**
  - Group "G" Industrial, single story un-sprinklered - **21,000 SF**
  - Group "B" Business, single story un-sprinklered - **17,000 SF**

◆ **Actual Area:**

The Heart of Georgia school original area:

School (East Wing)	16,000 SF
Technical Lab (West Wing)	35,200 SF
Change Order Auditorium + Classroom	<u>11,400 SF</u>

**1983 Approximate Original Bldg. Area                      62,600 SF**

# STANDARD BUILDING CODE

## 1982 SBC Increases in Area Allowed

### **Area Increase 1-Hour Fire Resistance:**

- ◆ SBC 403.4 allowed Type IV building, where interior walls are not less than 1-Hour construction

**Allowable Area increase up to 50% - Was this used?**

### **Area Increase for Fire Separation:**

- ◆ 1982 SBC Section 402.3 (b) allowed area increase for horizontal separation of not less than 30' extended for not less than 25% of building's perimeter.

**Allowable Area increase up to 100%**

### **Area Increase Schools - Group "C" Schools:**

- ◆ Area Increase where each Classrooms has two exits - one of which opens directly to the exterior and the building is surrounded by a minimum 60' open space.
- ◆ 1982 SBC Section 402.3 (e) allowed area of a 1-story Type IV building to be increased 100% if the building is surrounded by 60', and not less than two exits provided from each classroom, one of which opens directly to the exterior.

**Allowable Area increase up to 100%**

**The area increases are allowed to be additive - 300%**

# 1983 Ceiling Plan

## Value of Existing Drawings:

- No existing architectural floor plan or code data.
- The electrical reflected ceiling plan provided the “key” to understanding the original building code design.
- We forget the value of existing drawings for future work.

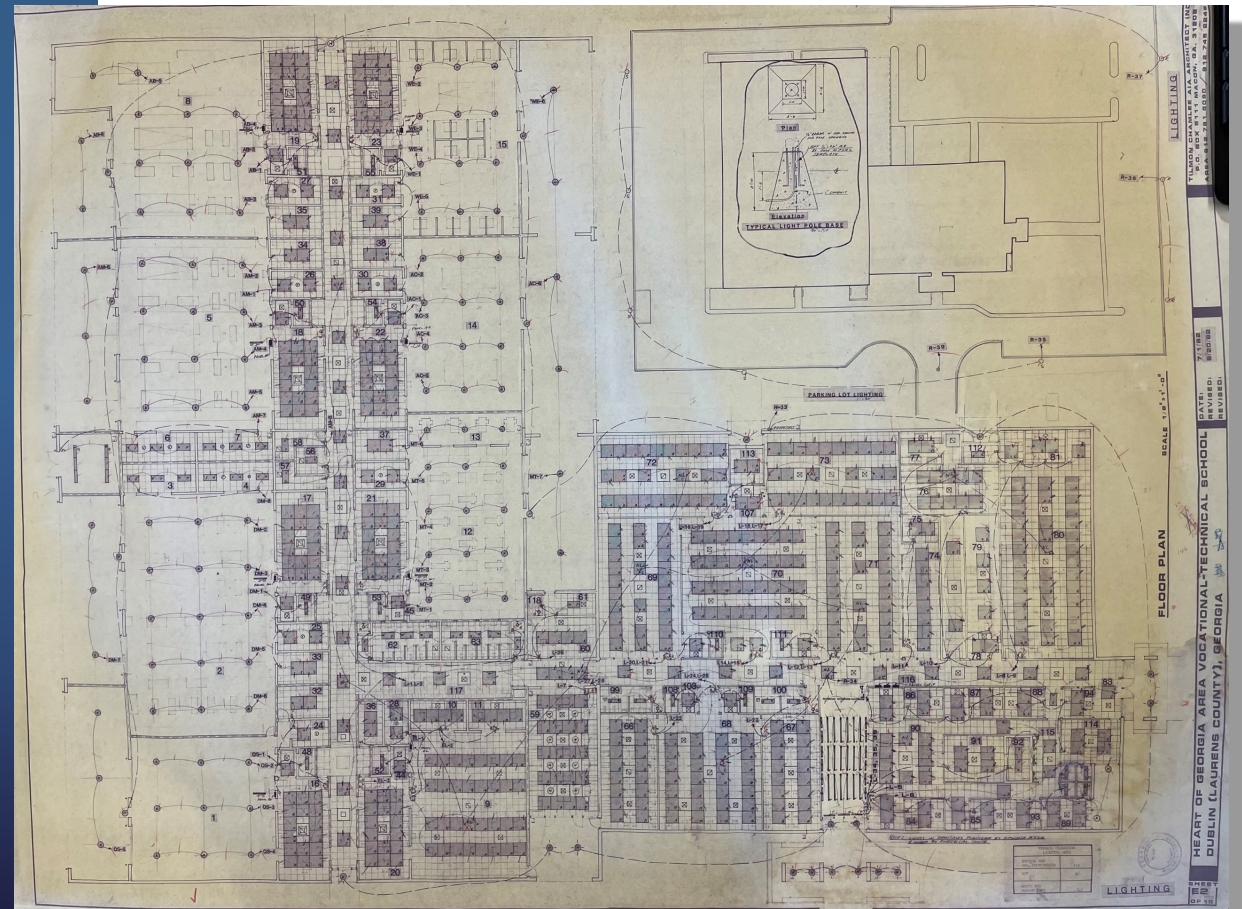
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# 1983 Floor Plan

## Original Building:

- The Heart of Georgia Technical School-1983
- Absorbed into Oconee Fall Line Technical College as part of the Technical College System of Georgia - 2011

## Two Distinct Areas:

- 1-Story Vocational Trades Area - Welding and Wood shops
- 1-Story Classroom and Office area
- Auditorium added during construction by change order.
- Building Area - approx. 63,000 SF
- Not a Sprinklered Building
- Twenty-Five Exits to the Outside

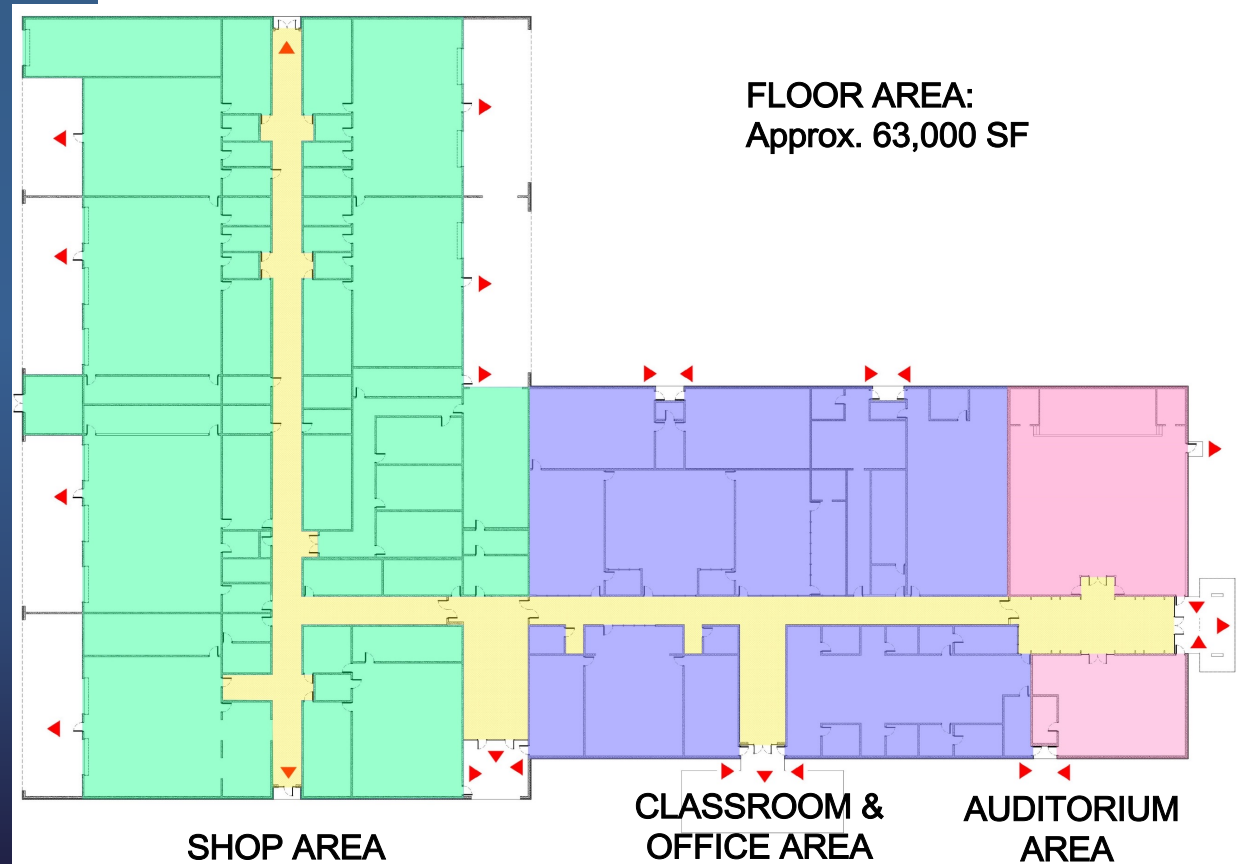
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# HOW WAS ALLOWABLE AREA DETERMINED?

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### Initial Design Submittals

- ◆ Building initially considered as a Business Occupancy.  
How can a Business Occupancy be un-sprinklered with an initial area of approximately 62,600 SF?  
The current building area is over 75,000 SF

### Must Understand Original Code Decisions

- ◆ Was the building a Mixed Occupancy with a 2-Hour Fire Barrier between occupancies?
- ◆ Was the building considered two separate building? (Not uncommon to view a 2-Hour Fire Barrier as equivalent to a Fire Wall.)

### Changes to Adopted Codes since 1983

- ◆ With the transition to the IBC, Adult Education changed from "School" and Industrial to Business and excludes tripling the allowable area for a School Occupancy.

# 2024 Floor Plan

## Change Building since 1983:

- Covered exterior space captured for interior use.
- New classrooms added - designed as a Business Occupancy without exits directly to the exterior.
- The additions and interior renovations increased the floor area greater than allowed in 1983.
- Central Corridor extended to provide access to new classroom space.
- Renovations eliminated many classroom doors that provided a direct exit to the outside.

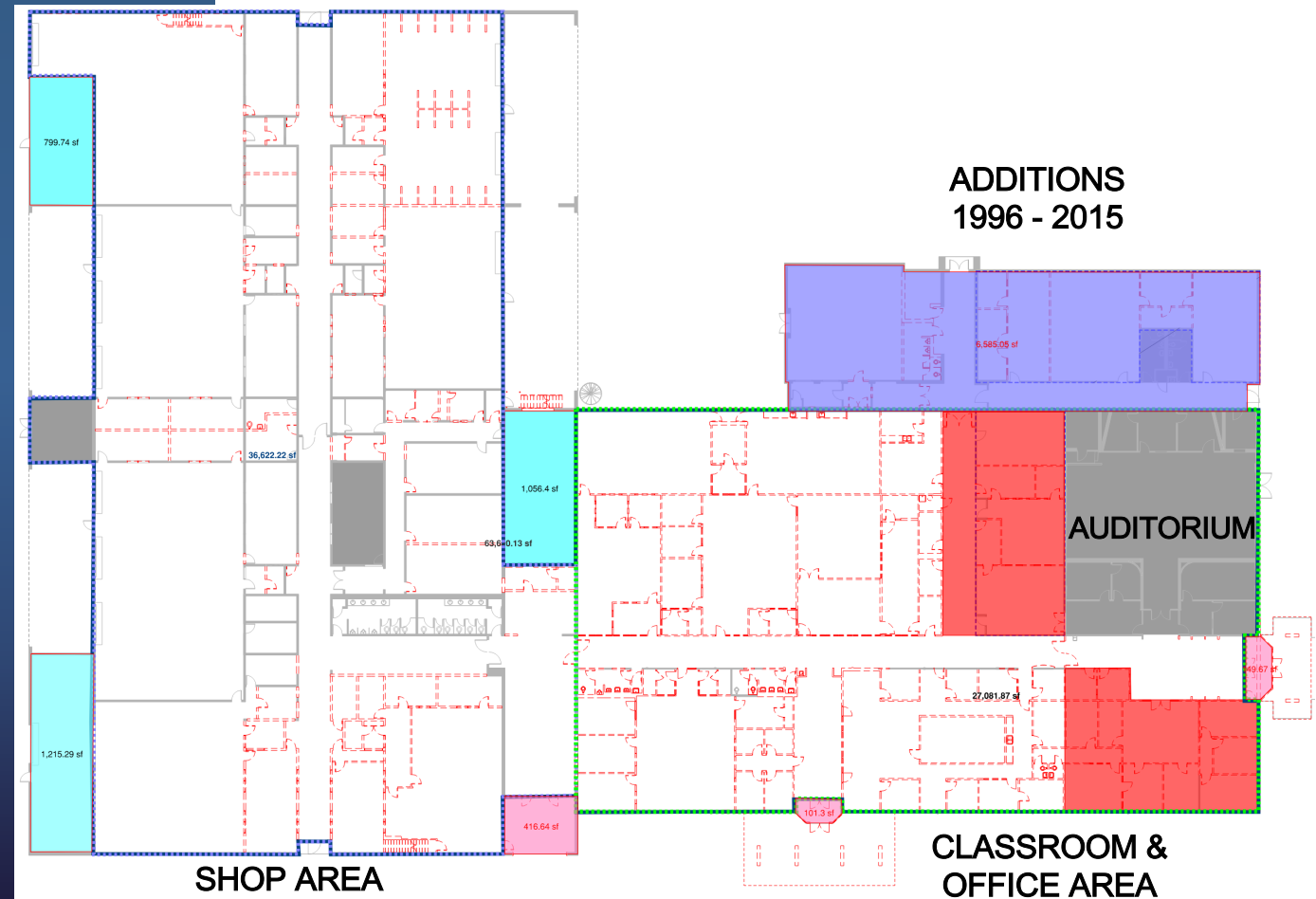
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# PATHWAYS FOR COMPLIANCE

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## **Sprinkler System Not Required??**

- ◆ Proposed design presented as not required to have a fire sprinkler system due to the Work fits the definition for Reconstruction - as a Business Occupancy.

## **Is this an appropriate code approach?**

- ◆ Yes, it is a valid argument.  
But is it fair (applicable) in this case where the present building no longer resembles the original authorized design?

## **How to Evaluate the Existing Building**

- ◆ But how to evaluate the existing building if it may remain an un-sprinklered building?

# PATHWAYS FOR COMPLIANCE

## How to Proceed?

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#### **Provision for Existing Buildings SFM Rule 120-3-3: Section 103.1.1**

- ◆ Substantial renovation **means any construction project involving exits or** internal features of such building ... costing more than the building's assessed value according to county tax records at the time of restoration - § O.C.G.A 24-2-124.

#### **Existing Building Fire Safety Evaluation**

- ◆ 2012 IBC Section 3412 - Provides a way to evaluate an existing building without requiring full compliance. This type of analysis provides a rational basis for establishing the safety of an existing building.
- ◆ 3412.5 Existing Building Fire Safety and Means of Egress evaluation.

# PATHWAYS FOR COMPLIANCE

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### Existing Building Fire Safety Evaluation

- ◆ 2012 IBC Section 3412.6

Evaluation - shall be 3 Main Categories 3412.5.1 - 3412.5.3

SAFETY PARAMETERS	FIRE SAFETY (FS)	MEANS OF EGRESS (ME)	GENERAL SAFETY (GS)
<a href="#">3412.6.1 Building Height</a> <a href="#">3412.6.2 Building Area</a> <a href="#">3412.6.3 Compartmentation</a>			
<a href="#">3412.6.4 Tenant and Dwelling Unit Separations</a> <a href="#">3412.6.5 Corridor Walls</a> <a href="#">3412.6.6 Vertical Openings</a>			
<a href="#">3412.6.7 HVAC Systems</a> <a href="#">3412.6.8 Automatic Fire Detection</a> <a href="#">3412.6.9 Fire Alarm Systems</a>			
<a href="#">3412.6.10 Smoke Control</a> <a href="#">3412.6.11 Means of Egress Capacity</a> <a href="#">3412.6.12 Dead Ends</a>	**** **** ****		
<a href="#">3412.6.13 Maximum Exit Access Travel Distance</a> <a href="#">3412.6.14 Elevator Control</a> <a href="#">3412.6.15 Means of Egress Emergency Lighting</a>	**** ****		
<a href="#">3412.6.16 Mixed Occupancies</a> <a href="#">3412.6.17 Automatic Sprinklers</a> <a href="#">3412.6.18 Standpipes</a> <a href="#">3412.6.19 Incidental Use</a>		**** + 2 =	
Building score — total value			

# PATHWAYS FOR COMPLIANCE

Compliance Alternatives IBC 3412

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## What Changed the Decision to Sprinkler

- ◆ **The buildings exits' and means of egress were altered significantly.**  
The SFM viewed the project as a substantial renovation - meaning it should be evaluated as complying with the new requirements.
- ◆ The existing building no longer has the original 1983 code features that allowed it to be un-sprinklered as a "School" occupancy:
  - Building Additions increased the area greater than allowed for an unsprinklered "School" occupancy.
  - Existing classrooms that had direct exits to the outside were removed.
  - Travel Distance exceed that allowed for an un-sprinklered "School" occupancy.
- ◆ **The changes voided initial code provisions allowing the building to be un-sprinklered.**
- ◆ The existing building Failed the Fire Safety Evaluation.
- ◆ Code definition of "School" - Education changed (in 2000) to exclude Adult Education.

# 2025 W.R. Stewart Floor Plan

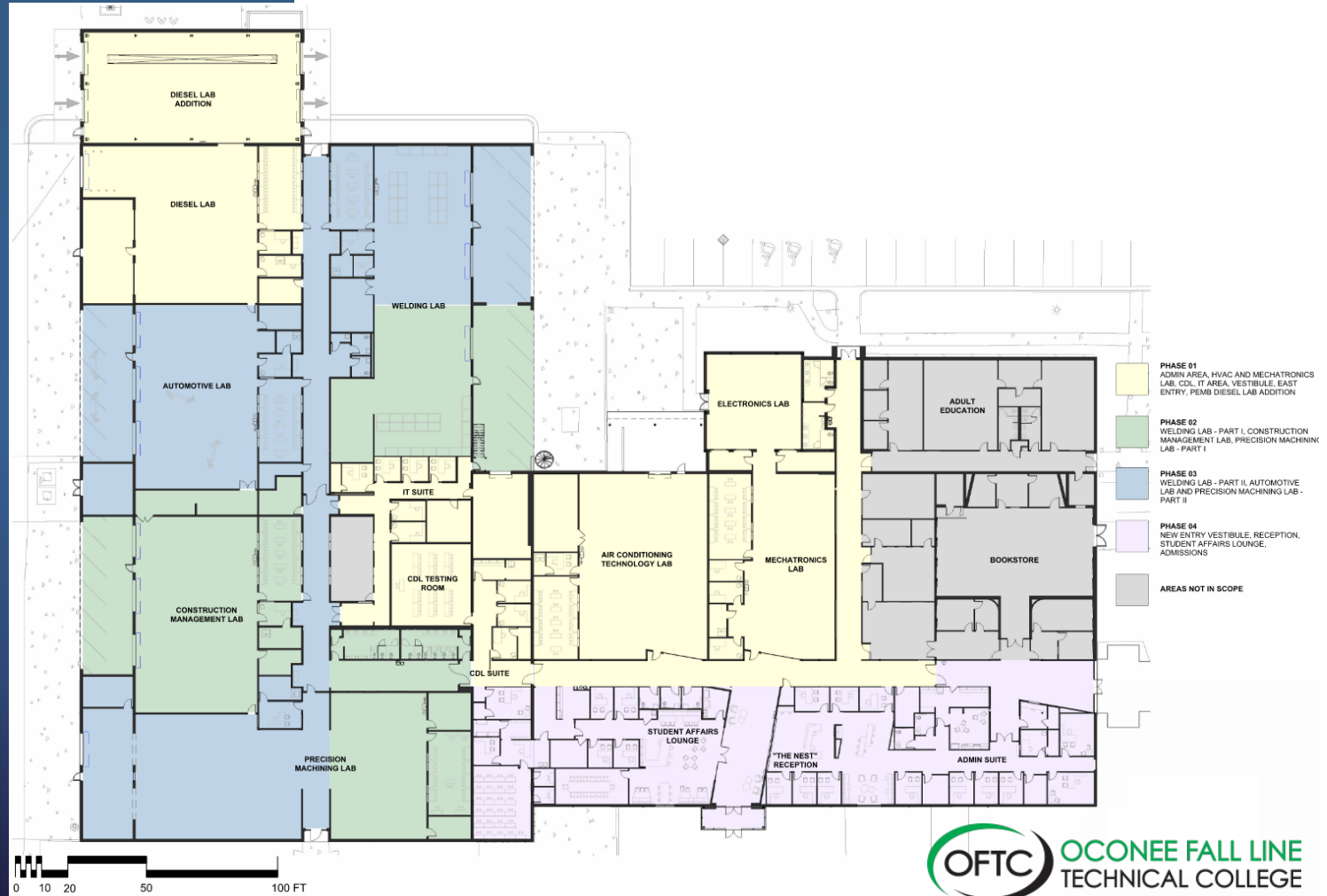
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# SUMMARY

## **Issues Considered - Overall Building and Life Safety Perspective:**

- ◆ The Standard Building Code (SBC) provided special consideration for technical schools without a sprinkler system where certain requirements included:
  - Fire separation of the building
  - Shorter travel distances
  - Classrooms with two ways to exit - one direct exit to the exterior
  - And smoke compartments to provide safe harbor and limit spread of smoke and fire.
  
- ◆ The original design for the Heart of Georgia Technical school provided these requirements to qualify as an un-sprinklered building.
  
- ◆ Through various additions and renovations, the building became progressively less compliant with 1982 SBC allowing the building to remain without a sprinkler system.
  
- ◆ Although the Use has not changed, the definition of the original occupancy has been redefined from School (education) to business.
  
- ◆ The present building is 31,000 SF greater than allowed (for Business Occupancy), hazardous activities (welding / HVAC repair) are routinely performed.

<b>STEP</b>	<b>DESCRIPTION</b>
<b>Inspection</b>	Visual and technical evaluation of facility components
<b>Documentation</b>	Collection of existing records and drawings
<b>Analysis</b>	Assessment of condition, performance, and compliance
<b>Reporting</b>	Compilation of findings into actionable insights
<b>Planning</b>	Development of renovation strategies and prioritization

## Key Benefits of FCAs

<b>BENEFIT</b>	<b>DESCRIPTION</b>
<b>Hidden Issue Detection</b>	Identifies problems before they impact renovation
<b>Code Compliance</b>	Ensures alignment with regulations
<b>Budget Optimization</b>	Supports phased planning and funding allocation
<b>Asset Performance</b>	Improves efficiency and longevity
<b>Stakeholder Confidence</b>	Builds trust through transparency



## Conclusion & Call to Action

### **Strategic Importance of FCAs**

Facility Condition Assessments provide critical insights that guide informed decisions throughout renovation projects.

### **Avoiding Costly Setbacks**

Evaluating facilities beforehand helps allocate resources effectively and prevents expensive renovation errors.

### **Call to Action**

Prioritize Facility Condition Assessments in early planning to ensure compliance, efficiency, and goal alignment.

### **Final Thought**

Remember this anonymous project management proverb:

**“No matter how far you’ve gone down the wrong road – turn back.”**





# UNDER CONSTRUCTION



# Questions

# THANK YOU

