



**PRESERVING A TERRA COTTA CORNICE BY MAKING EVERY UNIT COUNT:  
PEASE AUDITORIUM CASE STUDY**

## INTRODUCTION

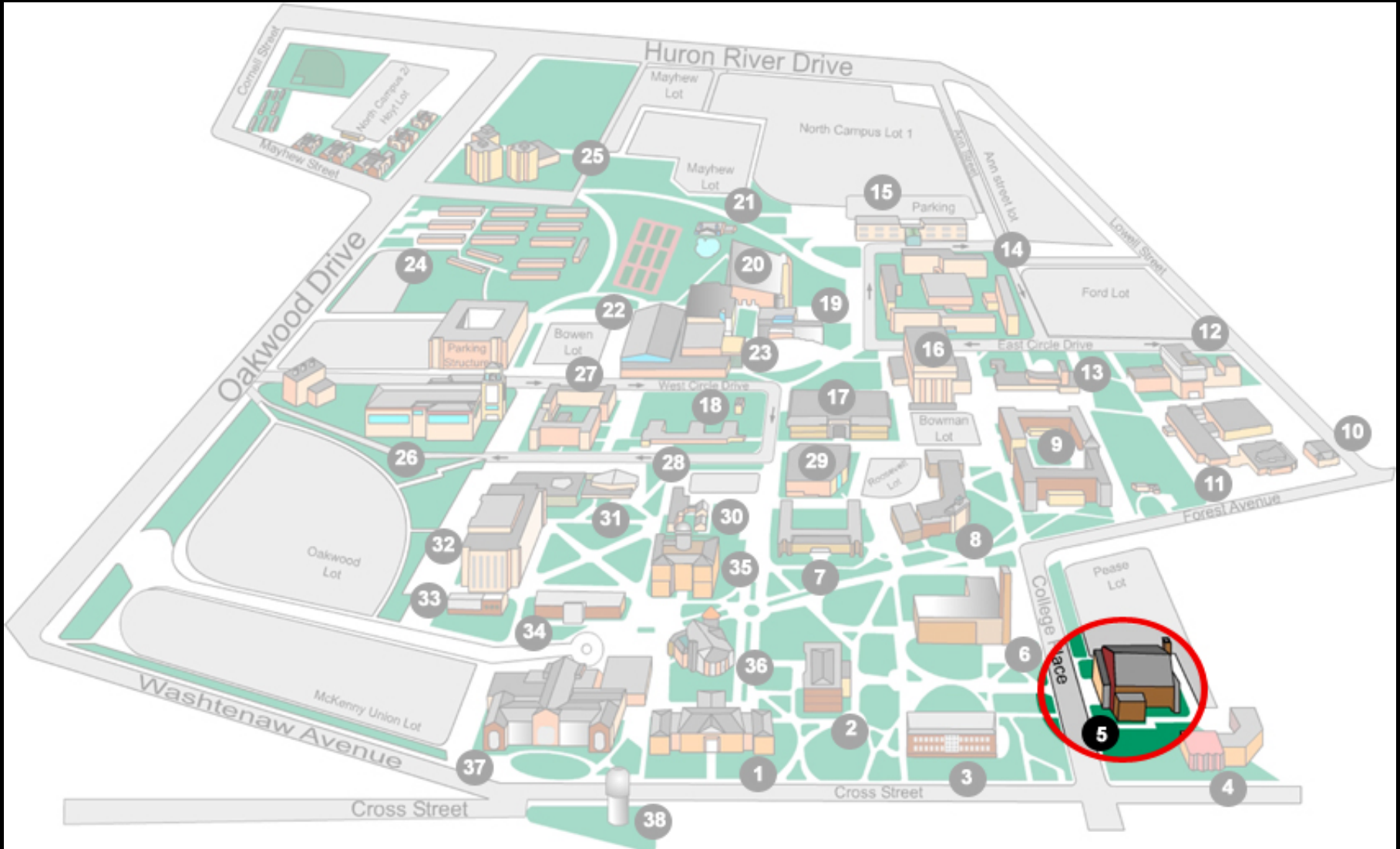
This case study is told through the following topics:

- **Investigation**
- **Documentation**
- **Collaboration**



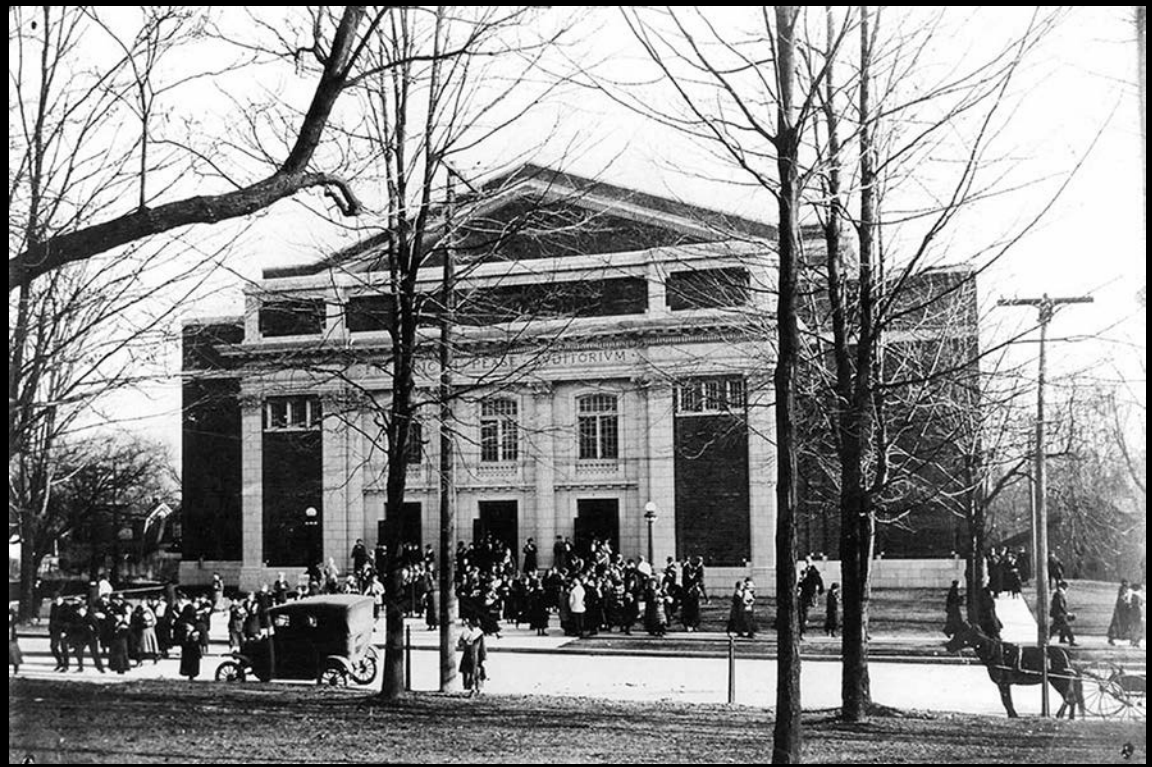
## BUILDING LOCATION

- Eastern Michigan University, Ypsilanti, MI
- National Register listed in 1974



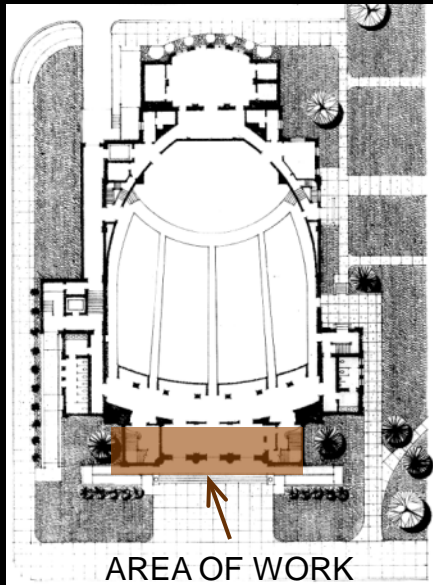
## BUILDING HISTORY

- Constructed in 1914
- Architects: Smith, Hinchman & Grylls
- Live performance and campus events, excellent acoustics
- Renovated in 1959 and 1994; exterior work deferred...



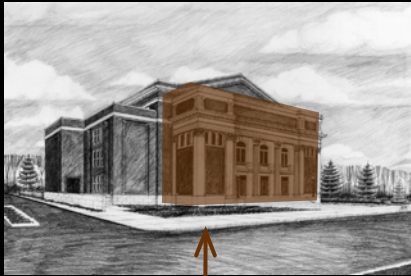
## PROJECT CONDITIONS

- Water infiltration damaged interior plaster
- Quick fixes and bad repairs
- Concerns about public safety



## PROJECT CONDITIONS

- Water infiltration damaged interior plaster
- Quick fixes and bad repairs
- Concerns about public safety



AREA OF WORK

- Large piece of Terra Cotta cornice fell to the ground



## INVESTIGATION

Defined survey goals with the owner to:

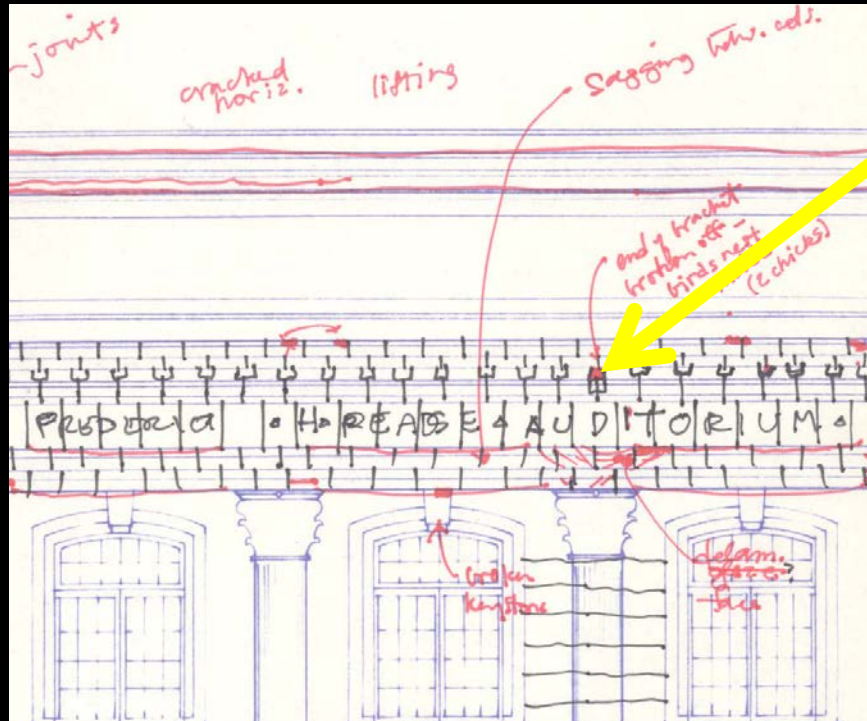
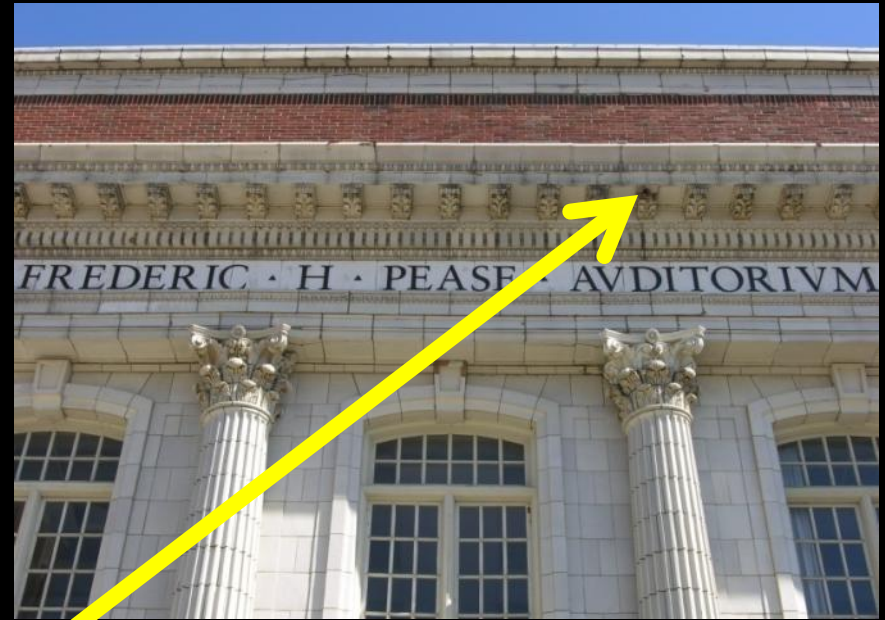
- Determine cause(s) of damage
- Determine extent of damage
- Gather information to prepare bid documents





# INVESTIGATION

- Visual survey
- Investigation of structure and anchoring
- Investigation of areas of water infiltration
- Detailed survey of unit types



## INVESTIGATION

- Visual survey
- Investigation of structure and anchoring
- Investigation of areas of water infiltration
- Detailed survey of unit types



## INVESTIGATION

- Visual survey
- Investigation of structure and anchoring
- Investigation of areas of water infiltration
- Detailed survey of unit types



## INVESTIGATION

- Visual survey
- Investigation of structure and anchoring
- Investigation of areas of water infiltration
- Detailed survey of unit types



## INVESTIGATION

- Visual survey
- Investigation of structure and anchoring
- Investigation of areas of water infiltration
- Detailed survey of unit types



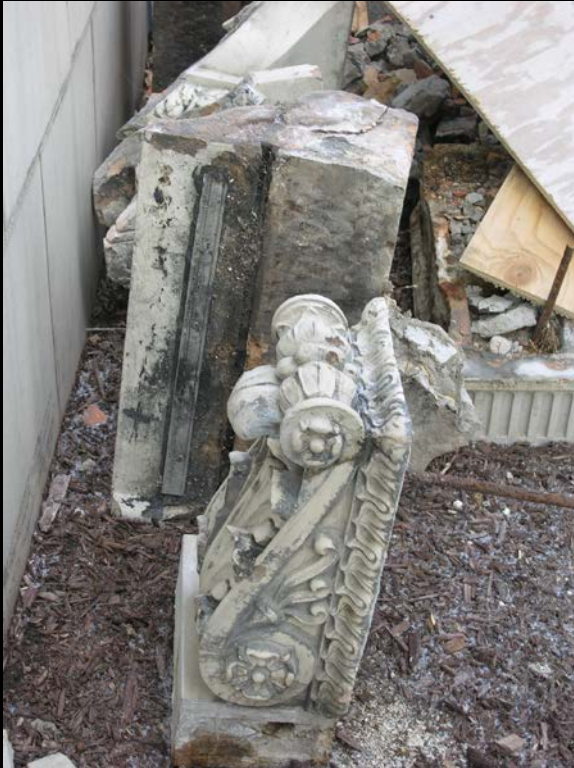
## INVESTIGATION

- Visual survey
- Investigation of structure and anchoring
- Investigation of areas of water infiltration
- Detailed survey of unit types



## INVESTIGATION

- Visual survey
- Investigation of structure and anchoring
- Investigation of areas of water infiltration
- Detailed survey of unit types



## INVESTIGATION RESULTS

- Temporary scaffolding to protect the public
- Confirmed scope of work for documentation



## DOCUMENTATION

- Point Cloud survey to generate base drawings

- 100% replacement of terra cotta at cornice
- Schedule of units to be replaced
- Sheet metal roofing at cornice
- 100% replacement of steel at cornice
- Structural Allowance for unknown conditions
- Allowance for additional re-pointing, repair, and replacement
- Alternates and amended scope



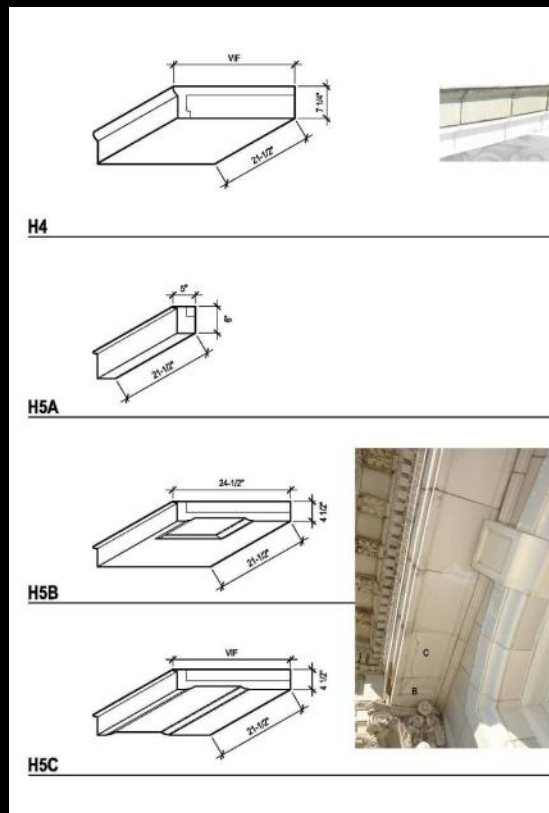
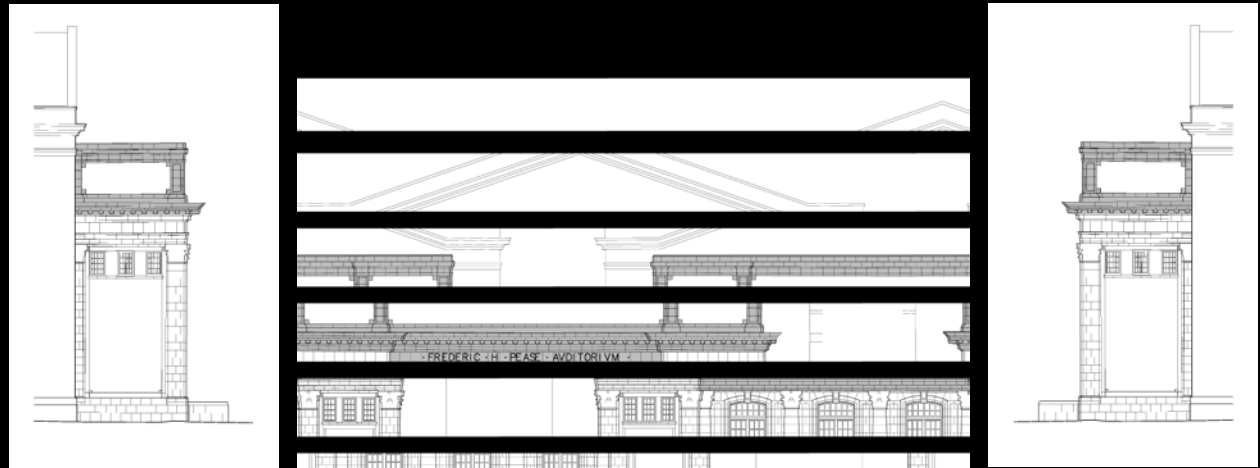
## DOCUMENTATION

- Point Cloud survey to generate base drawings
- 100% replacement of terra cotta at cornice
- Schedule of units to be replaced
- Sheet metal roofing at cornice
- 100% replacement of steel at cornice
- Structural Allowance for unknown conditions
- Allowance for additional re-pointing, repair, and replacement
- Alternates and amended scope



# DOCUMENTATION

- Point Cloud survey to generate base drawings
- 100% replacement of terra cotta at cornice
- Schedule of units to be replaced
- Sheet metal roofing at cornice
- 100% replacement of steel at cornice
- Structural Allowance for unknown conditions
- Allowance for additional re-pointing, repair, and replacement
- Alternates and amended scope



TERRA COTTA QUANTITY SCHEDULE					
TYPE	TOTAL	SIZE			REMARKS
		W	H	D	
<b>PARAPET</b>					
P1	84	22-1/2"	12"	14-1/2"	CORNER PIECES VARY FROM SIZES INDICATED
P2	82	22-1/2"	10"	12-1/2"	CORNER PIECES VARY FROM SIZES INDICATED
P3A	74	21-3/4"	17"	8"	CORNER PIECES VARY FROM SIZES INDICATED
P3B	74	21-3/4"	9"	8"	CORNER PIECES VARY FROM SIZES INDICATED
P4A	14	5"	15-1/2"	5"	CORNER PIECES VARY FROM SIZES INDICATED
P4B	8	13-3/4"	15-1/2"	5"	CORNER PIECES VARY FROM SIZES INDICATED
P5A	14	5"	15-1/2"	5"	CORNER PIECES VARY FROM SIZES INDICATED
P5B	8	13-3/4"	15-1/2"	4"	CORNER PIECES VARY FROM SIZES INDICATED
P6A	14	5"	15-1/2"	5"	CORNER PIECES VARY FROM SIZES INDICATED
P6B	8	13-3/4"	15-1/2"	4"	CORNER PIECES VARY FROM SIZES INDICATED
P7A	14	5"	15-1/2"	5"	CORNER PIECES VARY FROM SIZES INDICATED
P7B	8	13-3/4"	15-1/2"	4"	CORNER PIECES VARY FROM SIZES INDICATED
P8	18	23-3/4"	VF	VF	W AND D INACCESSIBLE DUE TO ROOFING
PT	20	8"	8"	VF	
<b>CORNICE</b>					
C1	73	20-5/8"	8-5/8"	10-3/8"	CORNER PIECES VARY FROM SIZES INDICATED
C2	88	20-3/8"	8"	24-1/8"	CORNER PIECES VARY FROM SIZES INDICATED
C3A	69	15-1/4"	6-3/4"	4"	
C3B	67	8-3/4"	6-3/4"	20"	BRACKET
C4	64	20-1/2"	10"	VF	CORNER PIECES VARY FROM SIZES INDICATED
C5	64	20-1/2"	3-1/2"	VF	CORNER PIECES VARY FROM SIZES INDICATED
<b>ASHLAR</b>					
A1	70	20-1/2"	20-1/2"	VF	CORNER PIECES VARY FROM SIZES INDICATED
<b>READER</b>					
R1	30	20-1/2"	12"	VF	
H2	46	20-1/2"	11"	8"	
H3	28	21"	4"	VF	
H4	25	21-5/8"	6"	5"	CORNER PIECES VARY FROM SIZES INDICATED
H5	25	21-5/8"	4-1/2"	24-1/2"	CORNER PIECES VARY FROM SIZES INDICATED
H6	30	21"	4"	VF	

**QUINN EVANS ARCHITECTS**  
 219 1/2 N Main Street  
 Ann Arbor, Michigan 48104  
 734 663 5888 734 663 5044  
 www.qeintn.com



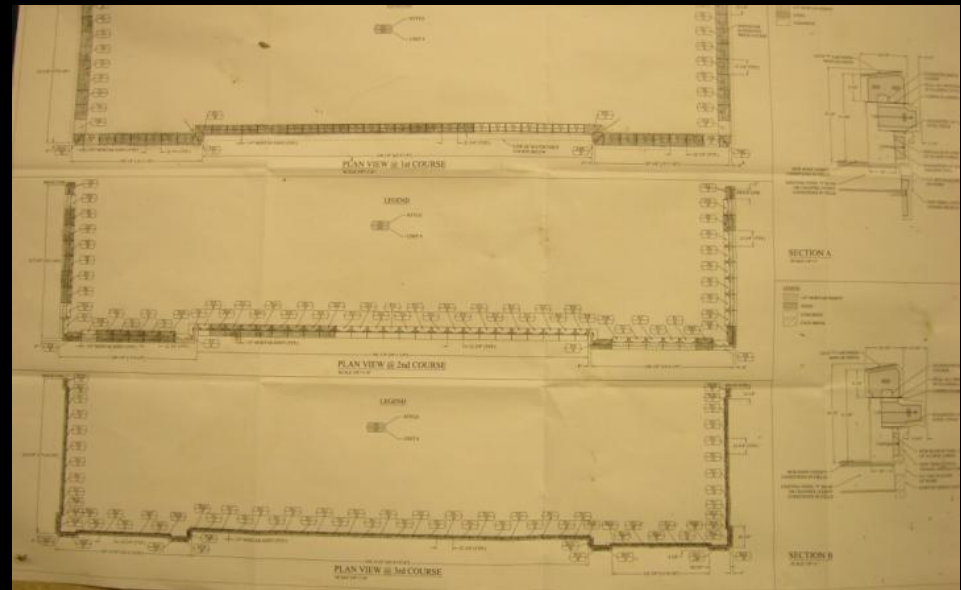
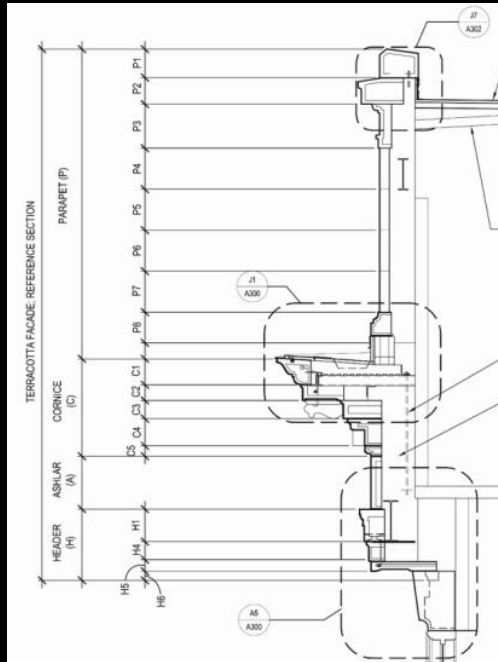
**Pease Auditorium**  
**Terracotta**  
**Repair and**  
**Replacement**

Ypsilanti, MI  
 QE|A No. 06144.00

**TERRACOTTA**  
**UNITS &**  
**QUANTITY**  
**SCHEDULE**

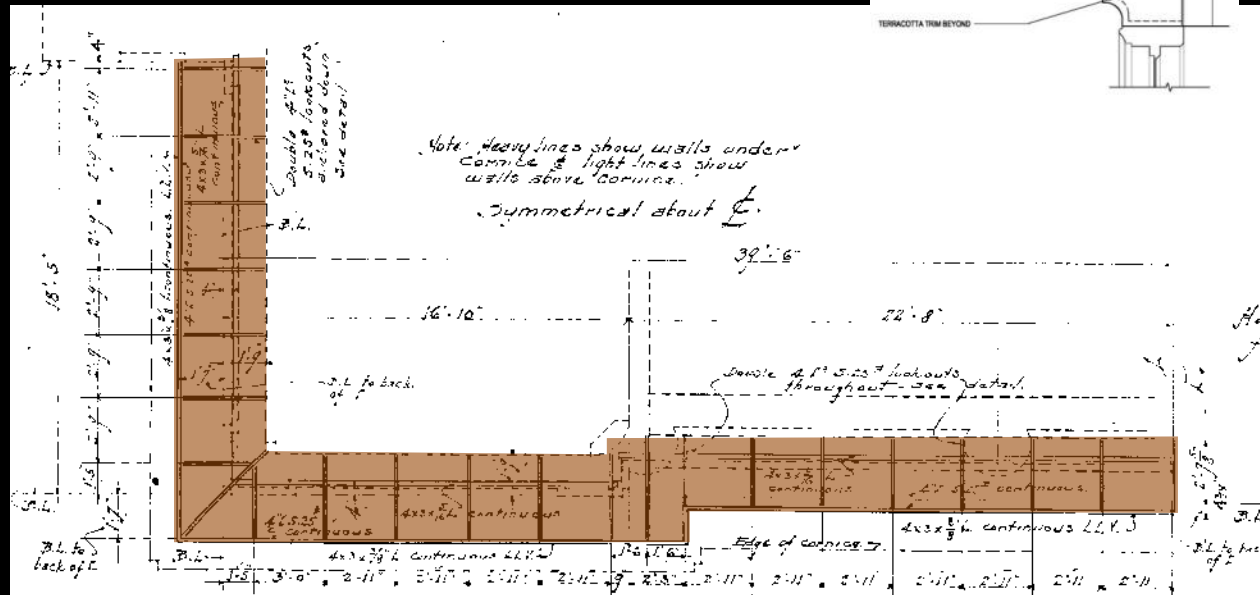
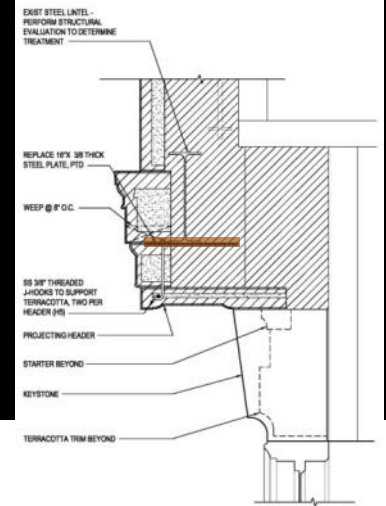
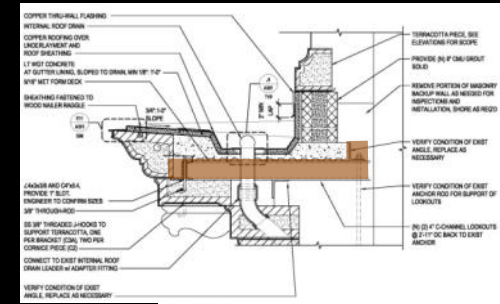
# DOCUMENTATION

- Point Cloud survey to generate base drawings
- 100% replacement of terra cotta at cornice
- Schedule of units to be replaced
- Sheet metal roofing at cornice
- 100% replacement of steel at cornice
- Structural Allowance for unknown conditions
- Allowance for additional re-pointing, repair, and replacement
- Alternates and amended scope



# DOCUMENTATION

- Point Cloud survey to generate base drawings
- 100% replacement of terra cotta at cornice
- Schedule of units to be replaced
- Sheet metal roofing at cornice
- 100% replacement of steel at cornice
- Structural Allowance for unknown conditions
- Allowance for additional re-pointing, repair, and replacement
- Alternates and amended scope



## DOCUMENTATION

- Point Cloud survey to generate base drawings
- 100% replacement of terra cotta at cornice
- Schedule of units to be replaced
- **Sheet metal roofing at cornice**
- 100% replacement of steel at cornice
- Structural Allowance for unknown conditions
- Allowance for additional re-pointing, repair, and replacement
- Alternates and amended scope



## DOCUMENTATION

- Point Cloud survey to generate base drawings
- 100% replacement of terra cotta at cornice
- Schedule of units to be replaced
- Sheet metal roofing at cornice
- 100% replacement of steel at cornice
- Structural Allowance for unknown conditions
- Allowance for additional re-pointing, repair, and replacement



- Alternates and amended scope



## DOCUMENTATION

- Point Cloud survey to generate base drawings
- 100% replacement of terra cotta at cornice
- Schedule of units to be replaced
- Sheet metal roofing at cornice
- 100% replacement of steel at cornice
- Structural Allowance for unknown conditions
- Allowance for additional re-pointing, repair, and replacement



- Alternates and amended scope



## CONTRACTOR SELECTION

- Mason as General Contractor versus Mason as Sub-Contractor
- Experience working with terra cotta
- Experience with historic buildings and construction



## CONSTRUCTION

- Keep project goals at the forefront of decision-making
- Encourage input from all team members
- Respect and utilize expertise of all team members



## CONSTRUCTION

- Keep project goals at the forefront of decision-making
  - Mortar mix design and constructability
  - Application of structural allowance
  - Schedule coordination



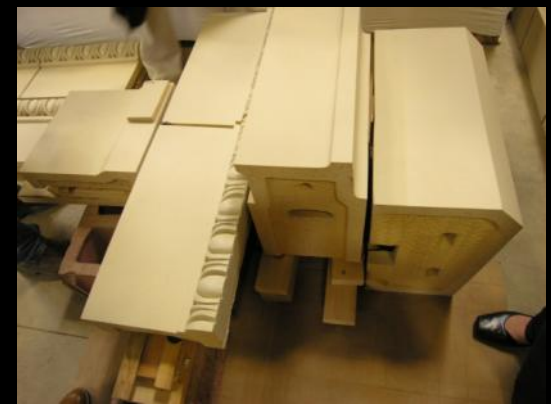
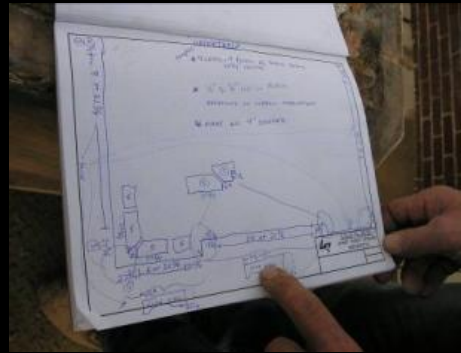
## CONSTRUCTION

- Keep project goals at the forefront of decision-making
- Encourage input from all team members
  - Modifications to original terra cotta profiles
- Respect and utilize expertise of all team members



## CONSTRUCTION

- Keep project goals at the forefront of decision-making
- Encourage input from all team members
  - Modifications to original terra cotta profiles



## CONSTRUCTION

- Keep project goals at the forefront of decision-making
- Encourage input from all team members
  - Modifications to original terra cotta profiles



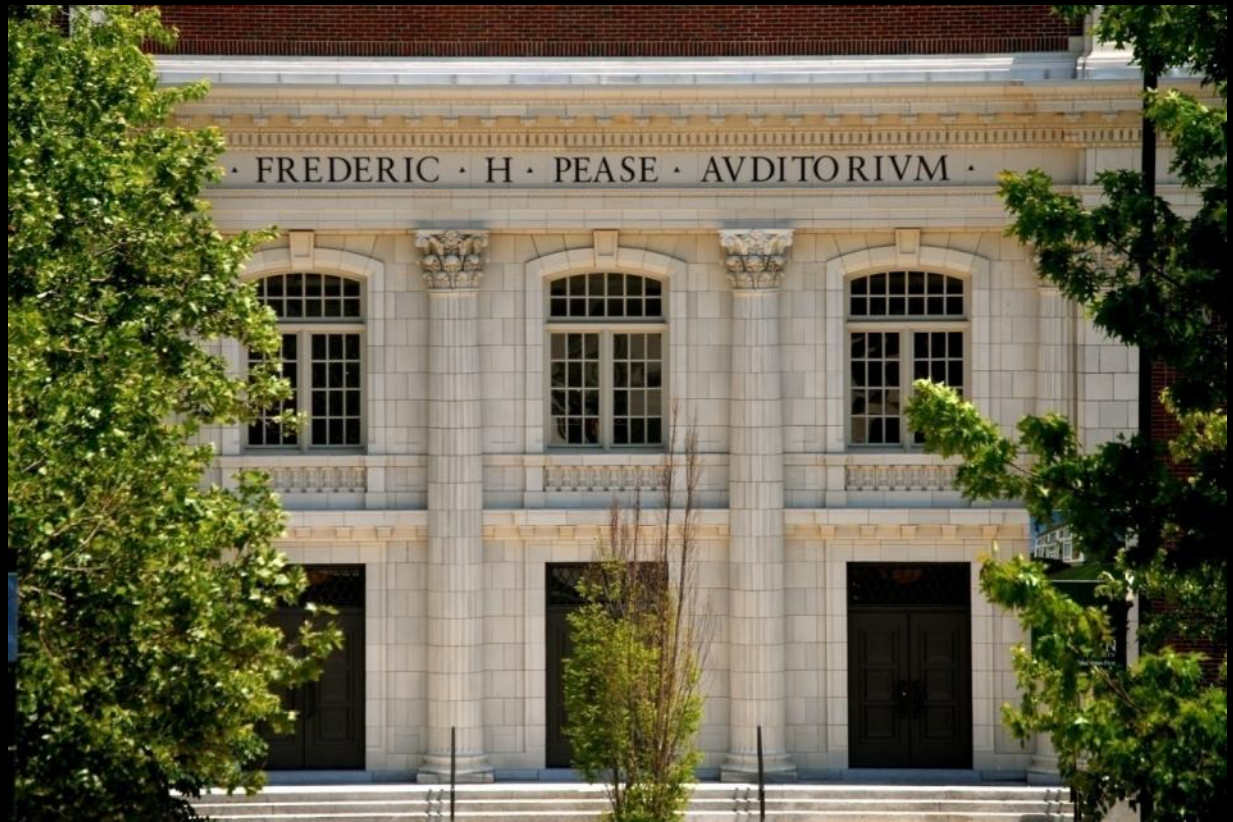
## CONSTRUCTION

- Keep project goals at the forefront of decision-making
- Encourage input from all team members
- Respect and utilize expertise of all team members
  - Re-use, repair, replace



## CONSTRUCTION

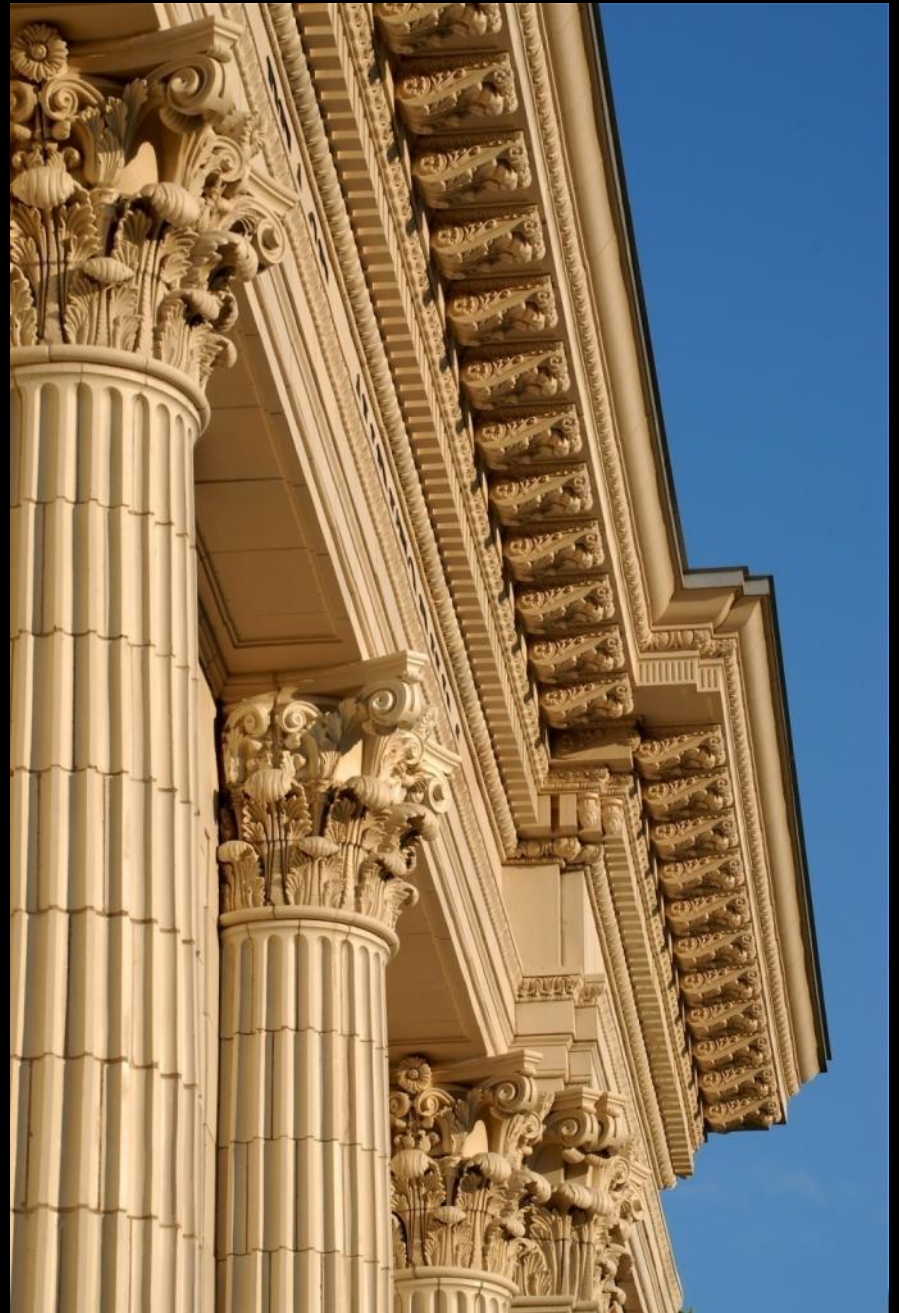
- Keep project goals at the forefront of decision-making
- Encourage input from all team members
- **Respect and utilize expertise of all team members**
  - Re-use, repair, replace



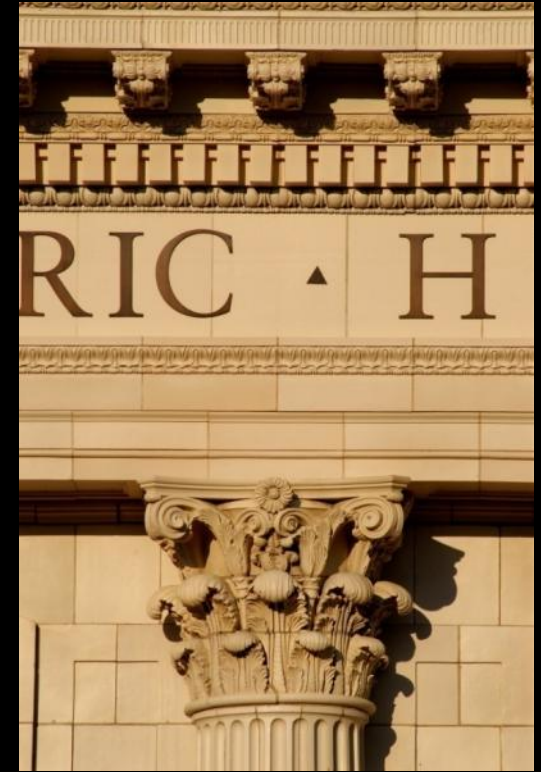
## CONCLUSION

Successful team approach  
resulted in:

- **Damages repaired**
- **Causes eliminated**
- **Cost savings realized**
- **Expectations surpassed**



## CONCLUSION



- **Masonry Institute of Michigan award for excellence in restoration**



## Questions and Discussion