



# SIGMA PI – GAMMA IOTA CHAPTER - CASE STUDY

WPI GAC MEETING  
DECEMBER 13, 2018

# HOUSE IMPROVEMENT SUMMARY (\$000)

## 2014 - 2017

Sprinkler System w/carpentry	140
Alarm System	21
Electrical Upgrade w/carpentry	205
Fire Rate Walls & Doors w/painting	106
Dining Room Floor	12
Replacement Windows (41)	30
Attic Insulation (MassSave)	1
ADA Bath, Bedroom, Ramp	96
Porches & Pantry	49
Common Area Carpet & Furnishings	10
City-side Bathroom	40
Bedroom Doors & Locks	30
Heating System & Laundry	90
<b>TOTAL</b>	<b>830</b>

# CHALLENGE NO.1

- ▶ Last WPI chapter house to install sprinkler system (2014).
- ▶ **BIG MISTAKE** – Doing electrical work without pulling a permit – discovered by COW.
- ▶ Certificate of Occupancy (CO) rescinded – emergency housing required.
- ▶ COW demanded total rewiring and fire exit routes upgraded - \$300K spent in 6 weeks.



# EMERGENCY PROJECT

- ▶ WPI supported planning and work.
- ▶ We used GC recommended by WPI.
- ▶ We direct-hired an architect.
- ▶ Used a standard AIA contract for GC.
- ▶ We struggled to get a contract with electrician.
- ▶ Obtained bridge loan from WPI and bank construction loan with support from WPI.



# CHALLENGE NO.2 – GC BANKRUPT

- ▶ GC began making mistakes (signal?).
- ▶ Job finished and full payment was made to all, the GC using AIA payment forms.
- ▶ GC went bankrupt – subcontractors and suppliers filed mechanics liens. Surprise to us.
- ▶ Liens resulted in technical default of loan.
- ▶ Retained legal counsel to dissolve liens; we had documentation that payment to GC was made in-full. Cost about \$2K to remove liens.



# CHALLENGE NO.2 – GC BANKRUPT

- ▶ Won't attempt electrical or plumbing work ourselves!
- ▶ Perform due-diligence on all contractors and conduct periodic assessments of financial health.
- ▶ Retain an architect with knowledge of Greek housing issues and a good relationship with COW.
- ▶ Always use AIA standard contract language.
- ▶ Attorney on retainer – just in case.



# CHAPTER HOUSE IMPROVEMENT

- ▶ Facility assessment; age, condition, etc.
- ▶ Depreciation schedule.
- ▶ Priority assessment.
- ▶ Cash flow analysis.
- ▶ Rent price evaluation.
- ▶ Implemented according to priority and affordability.
- ▶ Found bank financing. No luck until WPI made it easier by backing loan.





# FACILITY ASSESSMENT

## Furnace City Side



Installation Date: 1980 ?  
Manufacturer: York  
Model #: (LF2003151A) or (LF 200B15-1A)  
Serial #: (T-221940H03) or (GP196249)  
Capacity: 200,000 BTU

Fuel: oil  
Lifespan: 18 years  
Cost Estimate: \$3,500.

Notes:  
Recent burner replacement – 2010?  
2014 – Ductwork repair required

Description: Furnace, oil, atomizing gun type burner, 200 MBH input, U.L. listed, includes standard controls, excludes gas, oil or flue piping

Code: 235416166100

Unit: Ea.

Each: \$3,157.74

Class: 0

Bare Material: \$2,450.00

Bare Labor: \$302.95

Bare Equipment: \$0.00

Bare Total: \$2,752.95

## Stove



Installation Date: 1972  
Manufacturer: Garland  
Model #:

Serial #:

Capacity:

Fuel: Natural Gas

Lifespan: 12 years

Cost Estimate: \$6,000.

Notes:

Description: Range, commercial kitchen equipment, restaurant type, 6 burners & 2 standard ovens, 24" griddle, 60" wide

Code: 114413107150

Unit: Ea. Bare Material: \$4,500.00

Each: \$5,158.56 Bare Labor: \$138.12

Class: U Bare Equipment: \$0.00

Bare Total: \$4,638.12





# DEPRECIATION SCHEDULE

Depreciation Fund Account	Replacement Value	Lifecycle (yrs)	Annual Depreciation	Remaining Life (yrs)
Furnace - Tech side	\$10,000	20	\$500	10
Furnace City side	\$10,000	20	\$500	8
Hot Water Heater	\$4,000	10	\$400	8
Roof	\$25,000	30	\$833	12
1st Floor DR Flooring	\$10,000	15	\$667	0
1st Floor Living Room, Study, TV Room furniture	\$10,000	15	\$667	5
Dining Room Tables and Benches	\$5,000	10	\$500	8
Bathroom renovation - City side	\$15,000	15	\$1,000	13
Bathroom renovation - Tech side	\$15,000	15	\$1,000	0
Bathroom renovation - 1st floor	\$10,000	15	\$667	4
Exterior carpentry and painting	\$20,000	8	\$2,500	0
Siding	\$72,000	30	\$2,400	0
Windows	\$45,000	30	\$1,500	0
Stove	\$4,000	25	\$160	0
Refrigerator	\$4,000	10	\$400	5
Freezer	\$4,000	10	\$400	8
Dishwasher	\$3,000	10	\$300	9
Driveway	\$15,000	10	\$1,500	0
Chimneys	\$10,000	20	\$500	0
Interior painting - common areas all floors	\$5,000	4	\$1,250	0
Rehab Under grad rooms - refresh 5/year	\$7,500	4	\$1,875	2
<b>TOTAL ANNUAL DEPRECIATION EXPENSE</b>			<b>\$19,518</b>	
<b>TOTAL MONTHLY DEPRECIATION EXPENSE</b>			<b>\$1,627</b>	



# PRIORITY ASSESSMENT

**PRIORITY**

2/19/2015									
PTN Chapter House Improvement Plan									
Project Name	Project Category	Priority Type	ADA Cat.	I/O	Project Description/Scope of Work	Estimated Cost (\$)	Planned Project Start Date	Planned Project Completion Date	Status
Fire protection walls/doors	Safety	A	N	I	Add fire code sheet rock to rear stairways. Install fire rated doors in all common areas.	\$72,000	12/19/2014	2/28/2015	Mostly complete
Dining room floor	Structural	A	N	I	Very worn. Evaluate subflooring, select durable flooring material.	\$12,000	12/19/2014	2/28/2015	Mostly complete
Toilet stalls	Cosmetic	A	N	I	Evaluate code requirements and install toilet stalls on both sides.	\$3,000	12/19/2014	2/28/2015	Mostly complete
Paint new doors, frames, stairwells	Structural	A	N	I	Hire professionals to prime and finish paint the new surfaces being installed as part of the egress upgrades.	\$11,000	12/19/2014	2/28/2015	Mostly complete
Interior Painting	Cosmetic	A	N	I	Hire professionals to paint interior walls and ceilings in 2nd, and 3rd floor common areas.	\$3,000	12/19/2014	2/28/2015	Mostly complete
Hot air furnace - city side	Energy	A	E	I	Conduct system evaluation. Repair, air balance, ductwork repair.	\$3,000	12/19/2014	2/28/2015	Pioneer Oil has made some corrections; will complete during spring break.
MASS SAVE survey	Energy	A	N/A	N/A	Get MASS SAVE in to do a building survey. This may be a source of additional low interest funding for energy-saving projects.	\$0	1/1/2015	2/28/2015	Audit conducted on 2/17/15. Awaiting report.
Chimneys	Structural	A	E	O	Two chimneys need structural evaluation and brick repair.	\$2,000	5/1/2015	8/31/2015	Bid package being finalized.
Windows	Energy	A	E	I	Conduct a window survey. Evaluate replacement window types. Consider material for structural soundness, weight, etc. Work can be done in winter.	\$45,000	5/1/2015	8/31/2015	Home Depot selected as vendor. 51 windows to be replaced during spring break.
Siding Repairs	Structural	A	N	O	Hire professionals to repair or replace broken siding and structural problems, including the area above the Pool Room windows.	\$0	5/1/2015	8/31/2015	No action - to be included in exterior porch repairs.
Additional insulation	Energy	A	N	O	Consider blown-in insulation. Could get state assistance.	\$10,000	5/1/2015	8/31/2015	PTN has contacted MassSave to begin audit process.
ADA-compliance	Code	A	N/A	I	Construct accessible features to meet code requirements for spending over \$500K on Improvement.	\$40,000	5/1/2015	8/31/2015	Architect discussed with MAAB. Bid package being finalized.
Tech-side porch	Structural	B	N	O	Replace the deck.	\$2,500	5/1/2015	8/31/2015	Bid package being finalized.
City-side porch	Structural	B	N	O	Repair roof/structural rot-out/Activity Room window frame. Replace deck.	\$10,000	5/1/2015	8/31/2015	Bid package being finalized.
Kitchen porch deck	Structural	B	N	O	Needs replacement. Leaks both heat and water.	\$2,000	5/1/2015	8/31/2015	Bid package being finalized.
Pantry foyer	Energy	B	N	I	Very cold & drafty. Insulate & create air lock with a second door.	\$1,500	5/1/2015	8/31/2015	Bid package being finalized.
Steam radiators floor areas	Mechanical	B	E	I	Floor supporting many Tech-side steam radiators has deteriorated over five years due to steam/condensate leaks.	\$2,000	5/1/2015	8/31/2015	To be conducted by Pioneer Oil during summer break.
Bedrooms doors	Structural	B	N	I	Existing eclectic type of doors. Most need to fit frame. Consider fire resistance.	\$15,000	5/1/2015	8/31/2015	Bid package being finalized.





# PRIORITY ASSESSMENT (CONT.)

## Project Categories

Safety

Energy

Structural

Code

Comfort



## Priority Type

A. Must do ASAP

B. Important and Funded - but schedule when practically possible

C. Planned for if / when funding is available (e.g. finance with line of credit)

## ADA Category

E. Exempt

N. Non-exempt

# RENT PRICING



- ▶ Establish rent to meet new debt service.
- ▶ Data from the GAC, WPI housing, off-campus rental.
- ▶ Much discussion on the Board about a reasonable rent for the present and how to address increases as improvements are made. 4%-5% per year. Buy-in from the active chapter. (Difference between “tenants” and “brothers” – fast turnover.)



# CHALLENGE NO.3 - ADA TRIGGERS

- ▶ Exempt vs. Non-exempt alterations.
- ▶ Exempt alterations include sprinklers, electrical, plumbing, and mechanical.
- ▶ If the cost of non-exempt alterations exceeds 30% of the property value over a 3-year rolling period, ADA requirements will apply. We blew past the triggers.





# CHALLENGE NO.3 - ADA TRIGGERS

- ▶ Our Board discussed postponing certain projects to avoid ADA trigger. Finally decided to charge ahead.
- ▶ Architect negotiated with the Massachusetts Architectural Access Board (MAAB). Obtained some code waivers.





# PLANS AND SPECS

- ▶ Prepared feasibility studies and plans and specs for all projects to the extent possible to avoid inconsistencies between projects.
- ▶ Spent the time and money up-front to minimize contractor change orders.
- ▶ Received help from experienced alumni.
- ▶ Competed and chose GC on price, experience, availability, and reputation.
- ▶ Single-sourced further work when we got a fair price.



# CONTRACTS

- ▶ Always use AIA standard contracts.
- ▶ Include language about lien wavers (although this doesn't have much bite in Mass.).
- ▶ Indemnification for negligent acts only.
- ▶ No stipulated damages.
- ▶ Check on insurance coverage; based on the size of the job. \$2MM/\$1MM for large jobs.

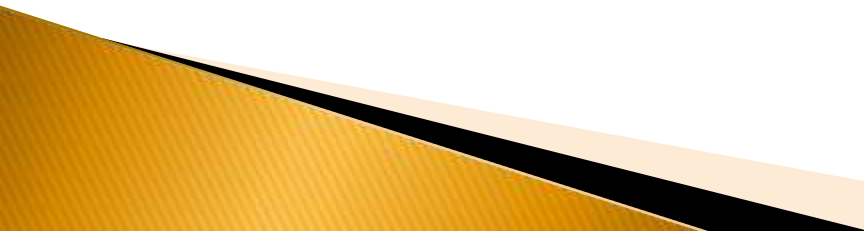


# IMPLEMENTATION (CONT.)

- ▶ Schedule is critical. There are few projects that can be undertaken without disruption and inconvenience to the students.
- ▶ Every school has the same constraints. We attempt to secure the GC well in advance and require timely completion in contract.
- ▶ We try to be aware of long-lead items – especially working with public utilities (e.g., gas, power, DPW).



# IMPLEMENTATION (CONT.)

- ▶ We use project duration as a planning criterion. The longest break is in summer, next longest is winter recess, then there's but a week in March. We have used that spring recess for some smaller projects.
  - ▶ Work with the chapter to insure no surprises.
- 



# IMPLEMENTATION (CONT.)

- ▶ We retain our architect for construction management.
- ▶ Require bi-weekly inspections during each from the architect and the preparation of inspection reports.
- ▶ Generally, contracts are T&M not-to-exceed. The architect establishes a schedule of values.





# CONTRACTOR PAYMENT

- ▶ Use an AIA payment request form, managed and signed by the architect.
- ▶ Ruthless about punch lists.
- ▶ NO change orders!!!
- ▶ Hold 5% minimum retainage.
- ▶ Make sure to get warrantees in the contract.



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# CHALLENGE NO.4 – CASH FLOW

- ▶ The pledge class was unexpectedly undersized to fill the Chapter House.
- ▶ Current brotherhood had already found housing and signed leases for the next school year.
- ▶ This is one of the biggest financial risks to the housing corporation – no insurance protection.



# CHALLENGE NO.4 – CASH FLOW

- ▶ The brothers living in the Chapter House could not collectively afford to pay the lump-sum semiannual rent and requested a reduction.
- ▶ The reduction (which was granted) had an important effect on our housing corporation cash flow; forcing a Board vote to postpone projects.



# **GENEROUS ALUMNI SAVED THE DAY**

We quickly raised sufficient funds to make up for the lost rent which allowed us to install a completely new heating system and begin work on our kitchen renovation.







**END**

