

MERCER UNIVERSITY

Mold Prevention Proposal

TCO 341 Team 1

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Introduction: Background

- Mold is present throughout Mercer University's residence halls
 - Old buildings susceptible to leaks and flooding attract mold
- Mold grows in areas of excessive moisture
- Mold has adverse effects on student health



Introduction: Purpose

The purpose of this proposal is to encourage Mercer to adopt a feasible solution to the mold infestation in on-campus housing to improve the well-being of students.



Introduction: Importance & Credibility

- Advantages of finding a solution:
 - Improvement in student health
 - Increased willingness to live on-campus
 - Improved reputation
- Disadvantages of finding a solution:
 - Negative reviews on housing
 - Poor student health
 - Low retention rates

Members of Team 1 have first-hand experience with the mold infestation.



Introduction: Scope

- **Not Covered:**
 - Non-tech preventative solutions to mold infestation
 - Each side effect of mold
 - Off-campus student opinions on university housing

Technical Approach: Feasibility Analysis

The possible solutions were evaluated for each feasibility criteria on a yes or no basis. Each criterion is a must-have for the solution to be considered. The criteria used for the feasibility analysis are:

- ☐ Abide by building rules
- ☐ Effective in preventing mold
- ☐ Convenience

Table 1: Feasibility Matrix

SOLUTION	Abides by Building Rules	Effective Mold Prevention	Convenient
Dehumidifiers	✓	✓	✓
Air Purifiers	✓	✓	✓
Air Exchangers	✓	✓	✓

Technical Approach: Merit Analysis

- The solutions were rated based on a set of merit criteria, or “nice to haves.” They are cost and installation time. Each criterion was weighted according to its importance.
- Air purifiers have the highest total merit of 91.8%. They are the most cost-effective with a short installation time. Air exchangers have the lowest total merit score of 22.2%; its main drawback was the long installation time.

SOLUTION	Cost (70%)			Installation Time (30%)			Total Merit (out of 100%)
	Feature Value (\$)	Raw Merit Score	Weighted Merit Score (%)	Feature Value (hrs)	Raw Merit Score	Weighted Merit Score (%)	
Dehumidifiers	\$1000000	1	7	2	9.6	28.8	35.8
Air Purifiers	\$200000	9	63	2	9.6	28.8	91.8
Air Exchangers	\$800000	3	21	48	0.4	1.2	22.2

Technical Approach: Evaluation Plan

1

Clear out
dorms of
students.

2

Clean and
clear dorms
of debris and
mold.

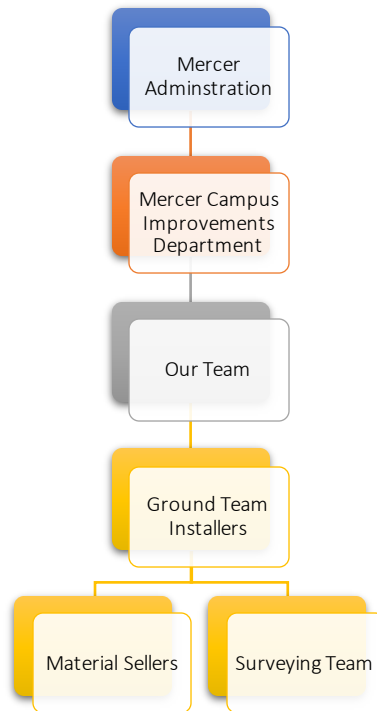
3

Install air
purifiers.

4

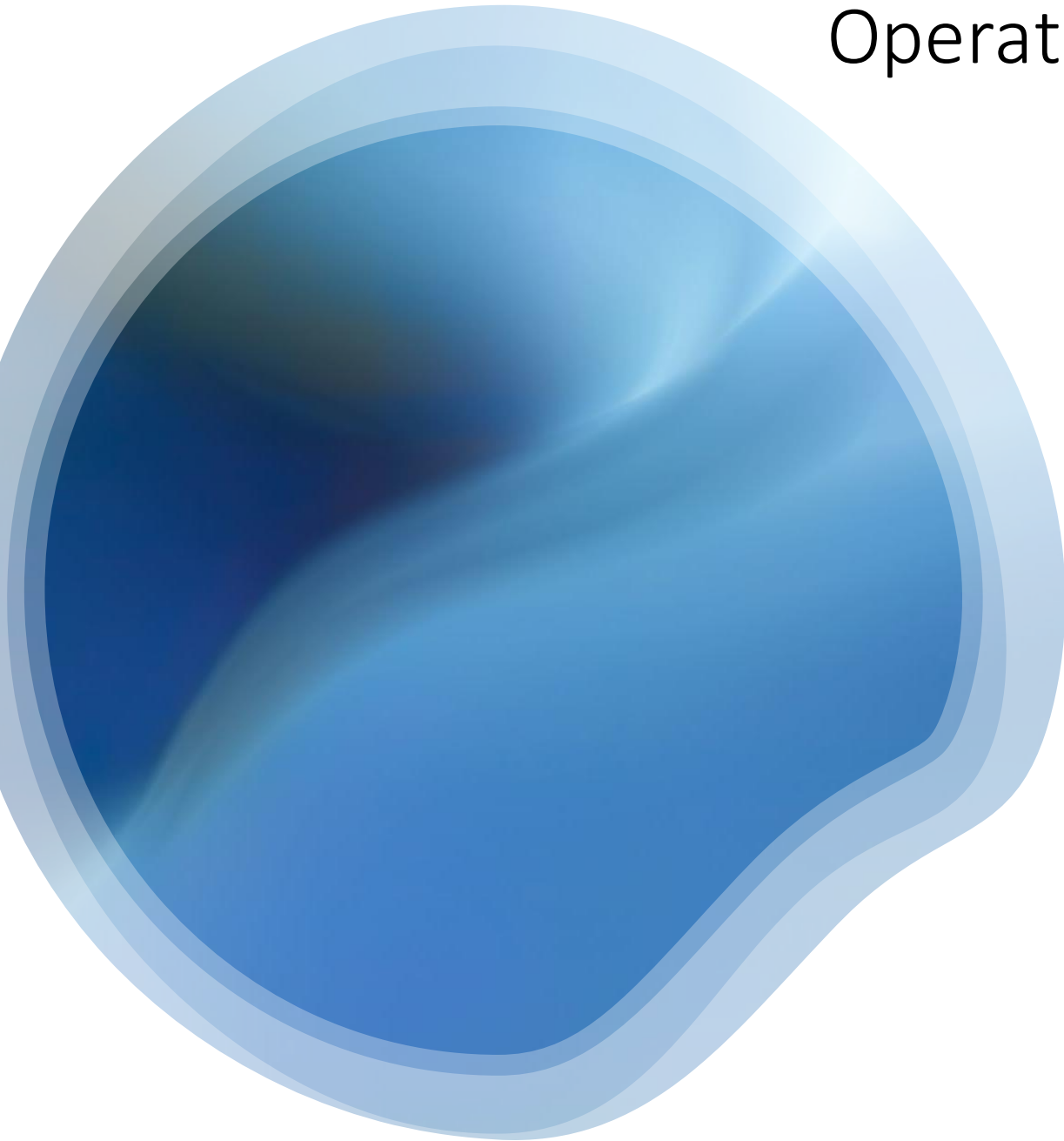
Monitor
mold.

Operation Plan: Management and Organization



The client is the highest chain of command for this project, closely followed by our team. The Ground Team/Installers, who oversee installing the air purifiers and clearing mold, report to Group 1, while Material Sellers and the Surveying Team report to them. Important information is sent up the chain and non-important information is handled earlier on in the chain.

Operation Plan: Plan Implementation



Planning

- (1 month)
- An inspection of residence halls done by the Surveying Team to figure out where mold is prevalent (3 weeks; from finals week through winter break)
- Team 1 and the Surveying Team will collaborate to examine the results of inspection to assess overall severity of mold presence (1 day)
- Mercer Maintenance and the Surveying Team will find suitable locations for the air purifiers (1 week)

Preparation

- (1.5 months)
- Mercer Campus Improvements Department will hire company that will supply the air purifiers (2 weeks; beginning of January)
- Team 1 will oversee the clearing of existing mold (1 month; from the beginning to the end of Summer Session I)

Supply

- (4 months)
- The materials sellers will ship out the materials and Team 1 will ensure that they arrive before the spring semester-end.

Execution

- (2 months)
- Installation of air purifiers delivered by the suppliers (entire duration of Summer Session III)
- The systems will be evaluated to assure they are functioning properly during winter break (3 weeks)

Operation Plan: Cost

We discussed the price of air purifiers, salaries, and indoor air quality monitors as a team to come up with a general estimate of how much it would cost to install the air purifiers. These are the major components of our strategy. The price of the 650 air purifiers, multiplied by their range in price from \$40 to \$600, comes to more than \$25,000 in total. The compensation of 20 Mercer Maintenance employees, which equates to about \$15–16 per hour multiplied by 40 hours per week from December to July (8 months), comes to more than \$100,000 as the cost of our workforce. The expense of monitoring the mold levels to evaluate if air purifier performance is improving for research data ranges from \$45 to \$459 multiplied by 5 employees, or \$300 and higher. In total our project will cost between \$122,225- \$494,695. Our project will cost between \$122,225 and \$494,695 in total.

Category	Item	Description	Source	Price	Quantity	Cost
Equipment	Air Purifier	A machine that filters harmful particles from the air	Supplier	\$40 - \$600	650	\$26k - \$390k
Personnel	Workers	Mercer Maintenance workers will install the air purifiers	Mercer	Salary pays \$15-\$16 /Hour	20	\$96,000-\$102,400
Equipment	Indoor Air Quality Monitor	Equipment used to monitor Mold Levels	Supplier	\$45 - \$459	5	\$225 - \$2,295
Total						Range of \$122,225 - \$494,695

Conclusion

In conclusion, Air Purifiers are the solution to the mold problem in living spaces at Mercer and other Universities. They break up large particles of mold which reduces the chances of clumps of mold which can cause health problems. By creating a plan of action which involves Planning, Preparation, Supply, and Execution, Team 1 has a method to deal with the mold in a cost-efficient timely manner. The only step left is the permission of the Mercer Board to green-light operation. With their help, we can officially start helping students (and Mercer University in general) alleviate their mold infestation.



Questions?