Northeastern University
College of Engineering

Implementation of LEED Certification In Brewery Industry - SAMUEL ADAMS

Team 4

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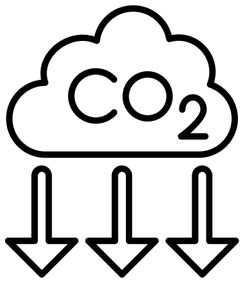
PURPOSE AND GOAL

Purpose

- Reducing environmental impact and promoting sustainability in the brewery industry.
- To achieve LEED certification, which demonstrates the brewery's commitment to sustainability and responsible environmental practices.
- Potentially attract environmentally-conscious customers.

Goal

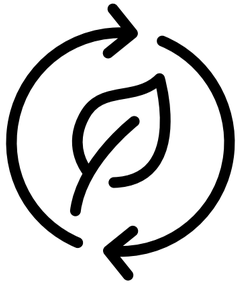
- Reduce the ecological footprint and resource consumption associated with traditional brewery operations.
- Create a healthy and safe indoor environment for employees and customers.
- Promote the use of renewable and recycled materials with low embodied energy.
- Demonstrate commitment to environmental sustainability and responsible resource management.



OBJECTIVE AND BENEFITS

Objective

- To encourage environmentally friendly materials and waste management by choosing materials with low environmental effect, putting in place a reliable recycling system, and carrying out different waste reduction strategies.
- To use cutting-edge LED light fixtures, high-efficiency HVAC systems, and VFDs to minimize energy consumption and improve energy efficiency in brewing operations.



Benefits

- LEED certification in breweries helps improve sustainability by promoting sustainable practices in energy, water, materials, waste management, and indoor air quality, ultimately reducing the brewery's environmental impact.
- More marketability.
- Enhanced brand image.
- Economic savings.

BREAKING THE BARRIERS

Other Brewery Industry Problems

Large Amount of Hot Water

High Energy Consumption for Heating and Cooling

Waste Management Issue

Large Size and Complex Operation

Samuel Adams Problem Solution

Energy Efficiency and Conservation

Installing Low-Fixture Flow and Reusing Water

Waste Management

Recycling

Renewable Energy

PERSISTENCE IN TACKLING CHALLENGES

Growing recognization of sustainability with right resource and support

5 - Recognization

Positive impact on the environment

4 - Impact

Breweries benefit from consultants and technological solutions for environmental management and sustainability

3 - Benefits

Reducing environmental footprint with LEED certification

2 - FootPrint

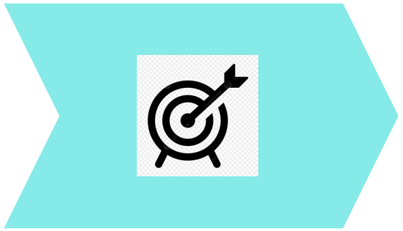
Growing sustainability awareness among businesses and consumers

1 -Awareness

TECHNICAL SUMMARY

How are we going to approach?

1 - Identifying the Goal



- Identifying Sustainability Goals
- Identifying Strategies

2 - Assemble a Team

- LEED Consultant
- LEED Architect and Engineers
- Contractors

3 - Conducting an Energy Audit

- Energy Efficiency Upgrades
- Renewable Energy Installations

4 - Sustainability Design

- Design
- Sustainable Materials
- Optimizing Energy
- Water Efficiency
- Reduce Waste

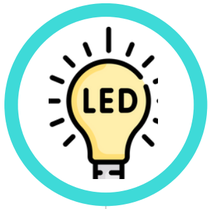
5 - Apply for LEED Certification

- Documentation
- Evidence to Show
- Met LEED Credits

TECHNICAL SUMMARY

LEED Certification in the brewery will be achieved by producing various systems in the areas of:

Energy Efficiency System



LED light fixtures with suitable color temperature

Variable Frequency Device to optimize energy consumption

Water Conservation System

Faucets with aerators to reduce water flow

Install water leak detection system

Waste Management System

Identify materials with minimal environmental effect

Install recycling bins and clearly label each bin

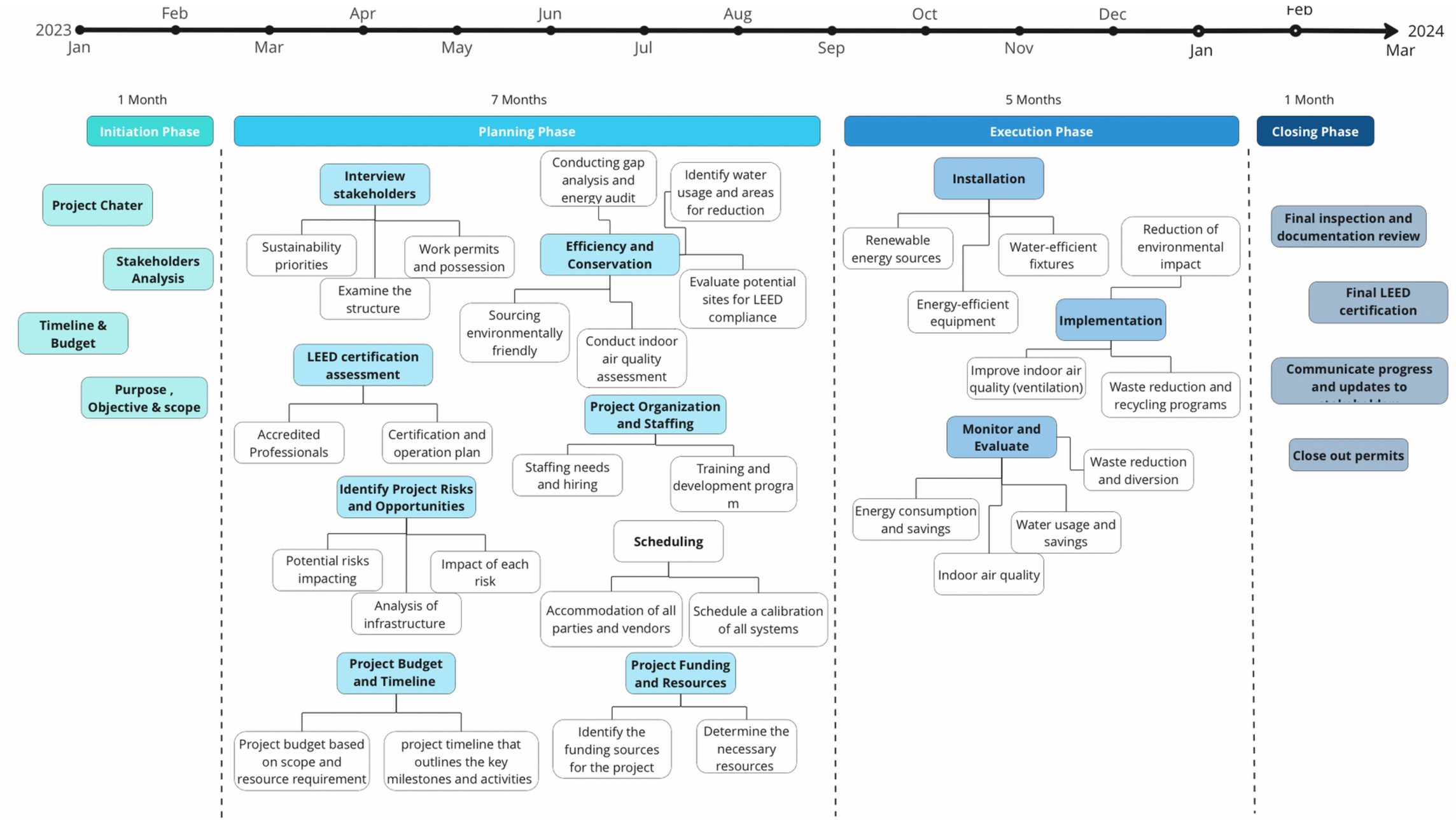
Partner with local recycling facilities

Indoor Air Quality Control

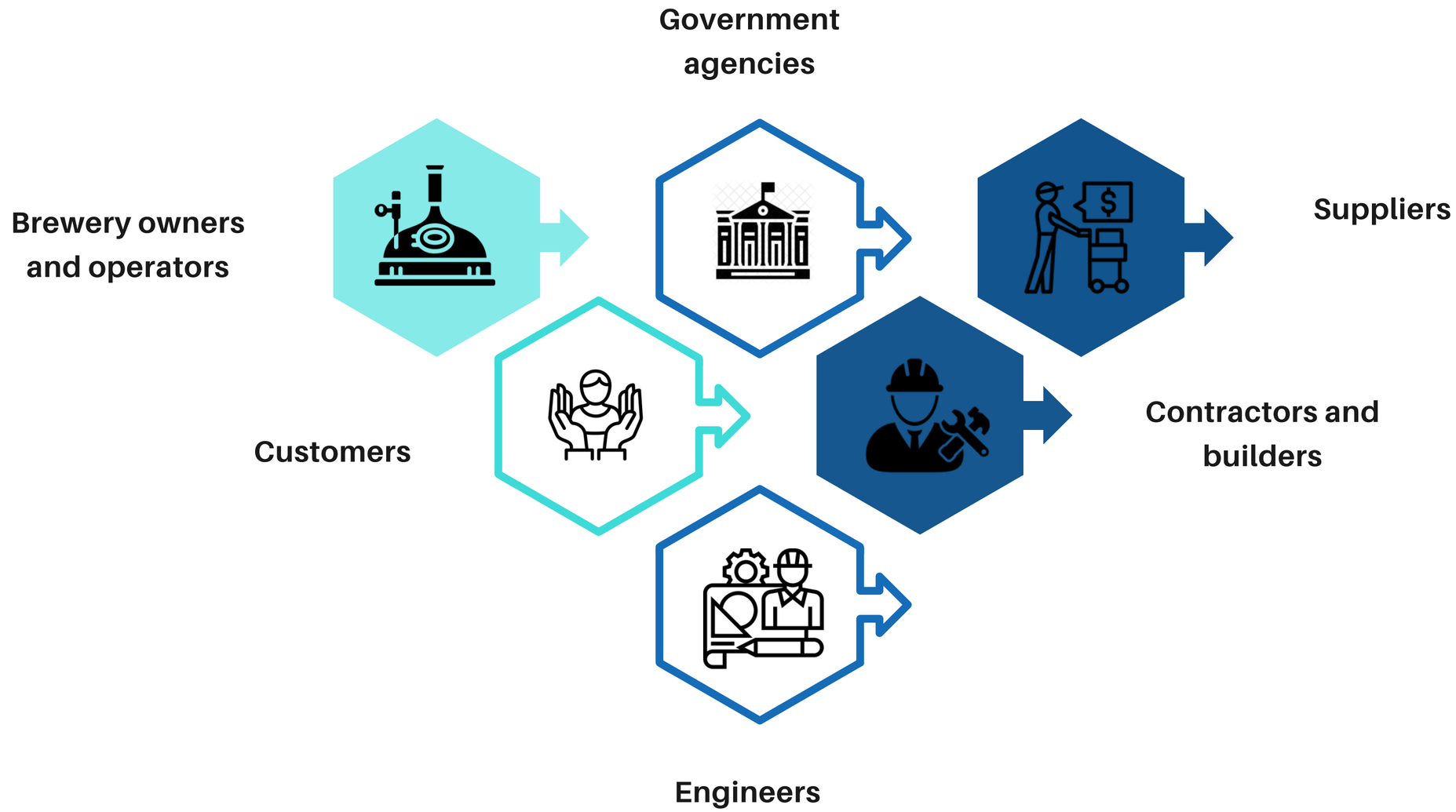
Low volatile organic compound paints and adhesives

Air ventilation with high efficiency air filters

IMPLEMENTATION



STAKEHOLDERS



MONITORING AND EVALUATION

Monitoring

- Time
- Cost
- Scope
- Quality
- Staff
- Changes

Control

Weekly meetings in management sectors:

- Finance
- Project
- Resource
- Stakeholders

Auditing

Audits that project will be following:

- Technical
- Project Status
- Final Overview

Closure

Evaluation that the goals and budget were met

Determine the project success

RISK ASSESMENT

Environmental Risk Assesment

- Assess the potential impact of the brewery's operations on the environment such as air water, waste and develop strategies to mitigate them.

Hazard analysis and critical control

- Identify potential hazards in the brewery including procedures for handling and storing hazardous materials, pest control measures, and food safety protocols.

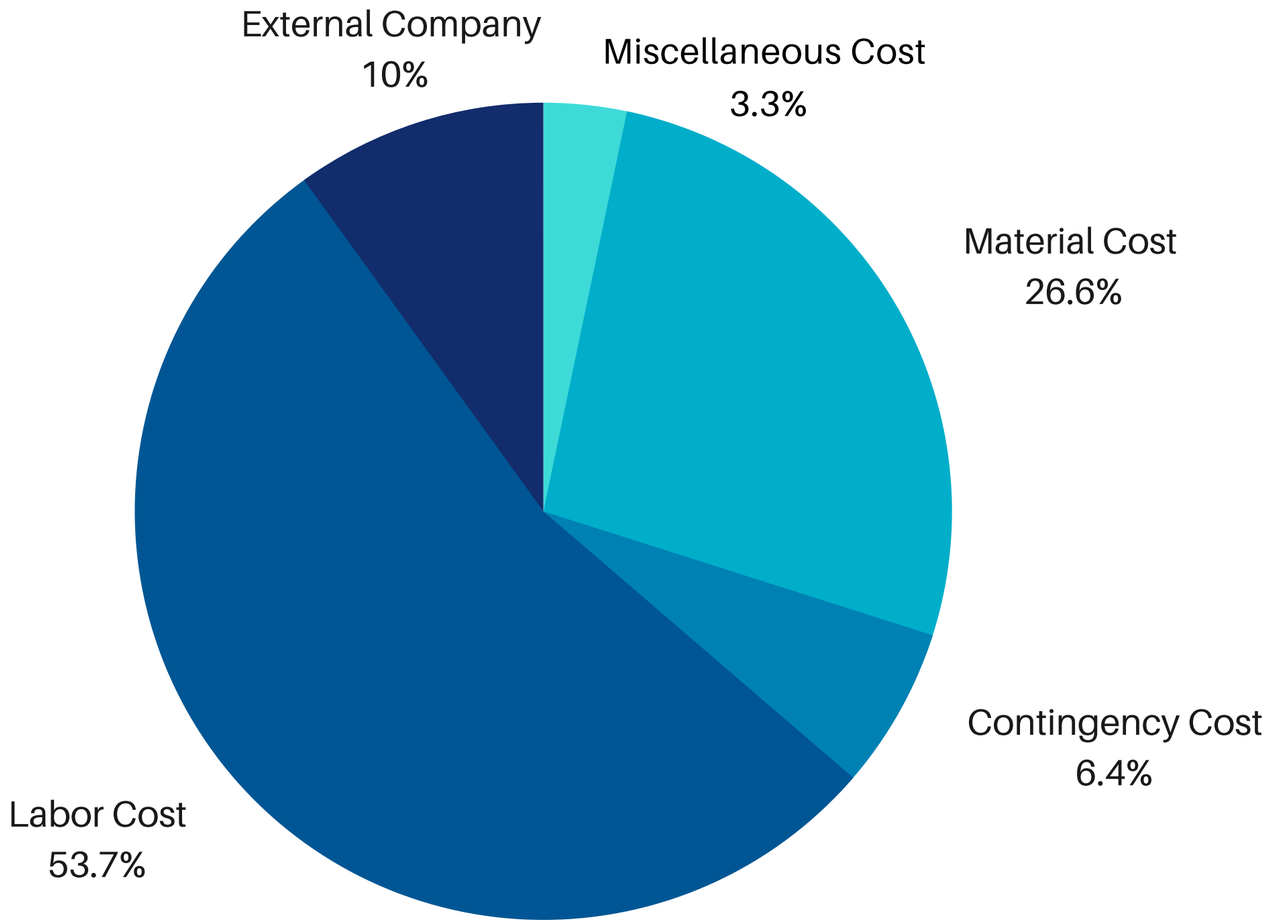
Occupational health and safety plan

- Protect employees from workplace hazards through training programs, personal protective equipment, and procedures for handling hazardous materials.

Emergency response plan

- Outlines procedures for responding to emergencies, such as spills, leaks, and fires.

FINANCIAL BUDGET



Role	Rate Per Hour	Total	Allocation
Quality Manager	$60	$132,000	7.83
Environmental Remediation	$60	$132,000	7.83
Sustainability Manager	$60	$132,000	7.83
Project Manager	$80	$176,000	10.43
Financial Manager	$60	$132,000	7.83
Energy Efficiency Manager	$60	$132,000	7.83
Environmental Compliance Specialist	$60	$132,000	7.83
Contruction	$20	$48,400	2.87
Renewable Energy	$20	$22,000	1.3
Brewery Processing Industry	$20	$44,000	2.6
Design	-	$479,610	28.4
LEED Reliability	$20	$16,000	0.94
Water Treatment & Filteration Systems	$20	$16,000	0.94
General	-	$59,110	3.5
Sustainability Design LEED Certification	$30	$33,000	1.95
Total (hours)			
25,487			

TOTAL BUDGET - $ 1,686,120

CLOSING STATEMENT

Simplifies statistics with 3 P’s

- To promote sustainable and environmentally friendly practices.
- Promoting sustainable materials usage, and improving indoor environmental quality.
- Transportation options to reduce carbon footprints and demonstrate a commitment to environmental sustainability and technical excellence.

Easy to understand

- Can help reducing carbon footprints and minimize environmental impact, creating a state-of-the-art facility that sets a new standard for sustainability and technical innovation.

Adds credibility

- Investing in energy-efficient systems, sustainable materials, and other technologies.
- Sustainable site planning and development strategies
- Can help reducing carbon footprints and minimize environmental impact, creating a state-of-the-art facility that sets a new standard for sustainability and technical innovation.

Makes an impact

- Cost-effective and environmentally sustainable
- Reducing energy and water consumption, promoting sustainable materials usage, and minimizing environmental impact
- Healthier and more efficient workplace

Q & A

THANK YOU!