

**MILESTONE 2 (TEAM) – COVER PAGE**Team Number: 

Mon-11
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Please list full names and MacID's of all *present* Team Members

Full Name:	MacID:
Mohammad Bilal	Bilalm14
Ayaz Aziz	aziza30
Shreya Gopalakrishnan	gopals4
Iris Lin	lini8

Any student that is ***not*** present for Design Studio will not be given credit for completion of the worksheet and may be subject to a 10% deduction to their P-1 grade.

## MILESTONE 2 (STAGE 1) – REFINED PROBLEM STATEMENT FOR A WIND TURBINE

Team ID:

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The Title of The Assigned Engineering Scenario

The Roof Generator

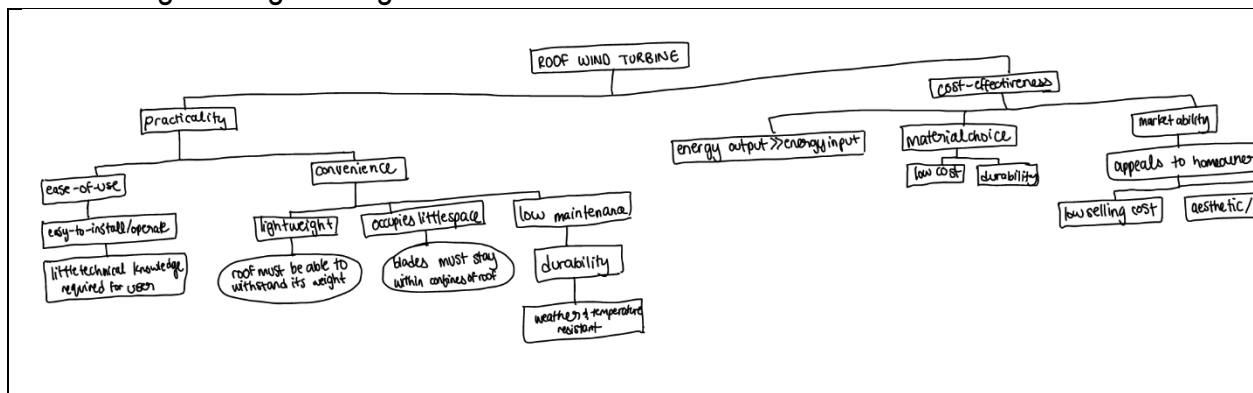
Write the Initial Problem Statement Below

→ This is a *copy-and-paste* submission of what you submitted for Milestone 1

Design a turbine that generates electricity through wind.

Finalized Objective Tree of Wind Turbine for Your Assigned Engineering Scenario

→ Please insert a copy of your finalized team objective tree of a wind turbine for your assigned engineering scenario.



Refined Problem Statement:

→ Write the refined problem statement for the design of a wind turbine based on your assigned scenario.

Design a wind turbine that rests on a residential roof and generates electricity for residential homeowners.

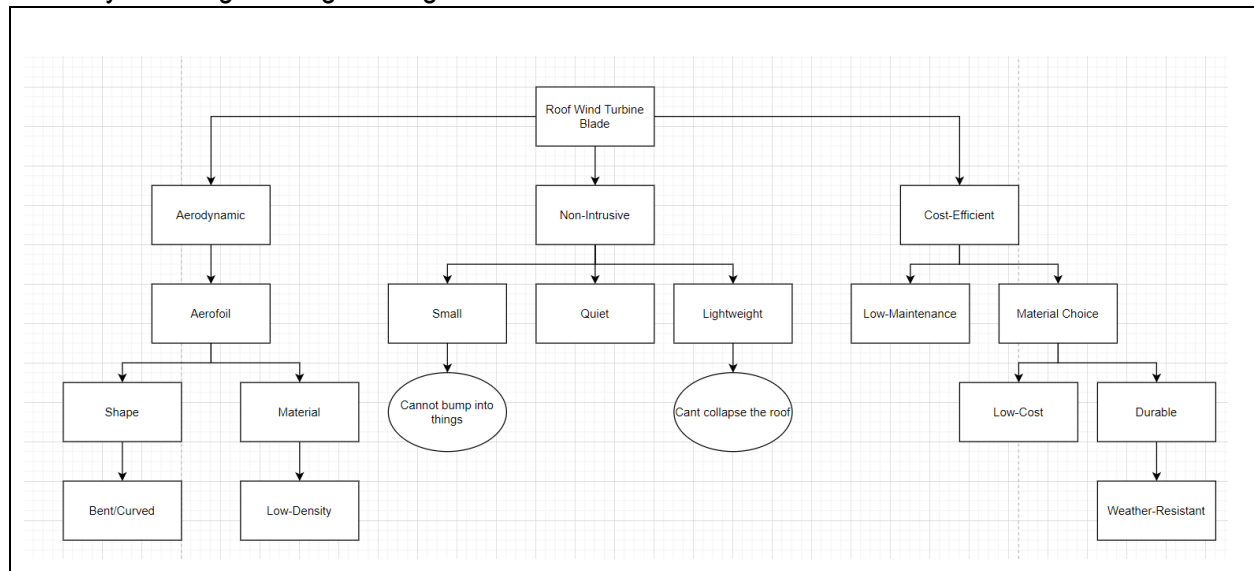
## MILESTONE 2 (STAGE 2) – DESIGN REQUIREMENTS FOR A TURBINE BLADE

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Objective Tree of turbine blade for assigned engineering Scenario

→ Please insert a copy of your team objective tree for the design of a turbine blade based on your assigned engineering scenario.



Turbine Blade Problem Statement:

→ Write a complete problem statement for the design of a turbine *blade* based on your assigned engineering scenario.

Design a wind turbine blade for a wind turbine that rests on a residential roof.

## MILESTONE 2 (STAGE 3) – SELECTION OF TOP OBJECTIVES FOR A TURBINE BLADE

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List the top three objectives of a turbine blade for your assigned engineering scenario

- 1: Aerodynamic
- 2: Compact Size
- 3: Low-Cost

Include a rationale for selecting each of these objectives

→ Write *maximum* 100 words for each objective

### Objective 1: Aerodynamic

Rationale: The wind turbine blade should be able to reduce the drag from air moving past, this is because our blades being aerodynamically structured allows for less friction (not turbulent) between consecutive swings which enables our turbine to produce electricity efficiently.

### Objective 2: Compact Size

Rationale: The wind turbine blade should be compact and not interfere with neighbouring housing and/or wind turbines. Since the turbine is in a residential area, it should not cause disturbance to residents.

### Objective 3: Low-Cost

Rationale: The wind turbine blade should be affordable considering there will be multiple blades on the turbine and it is meant for the average homeowner. Also, a blade that is low-cost probably cannot simultaneously have the most durable material (as that would be expensive). So should a blade need replacement, the cost will be affordable for the homeowner.

## MILESTONE 2 (STAGE 4) – METRICS

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For your selected top three objectives fill out the table below with associated metrics (including units) for each objective.

Objective 1:	Aerodynamic
Unit/Metric:	Lift-to-drag ratio

Objective 2:	Compact Size
Unit/Metric:	Length (meters)

Objective 3:	Low-cost
Unit/Metric:	Cost (\$)