

FEDC Client Proposal Template

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Proposal Title: Duster for Inaccessible Surfaces

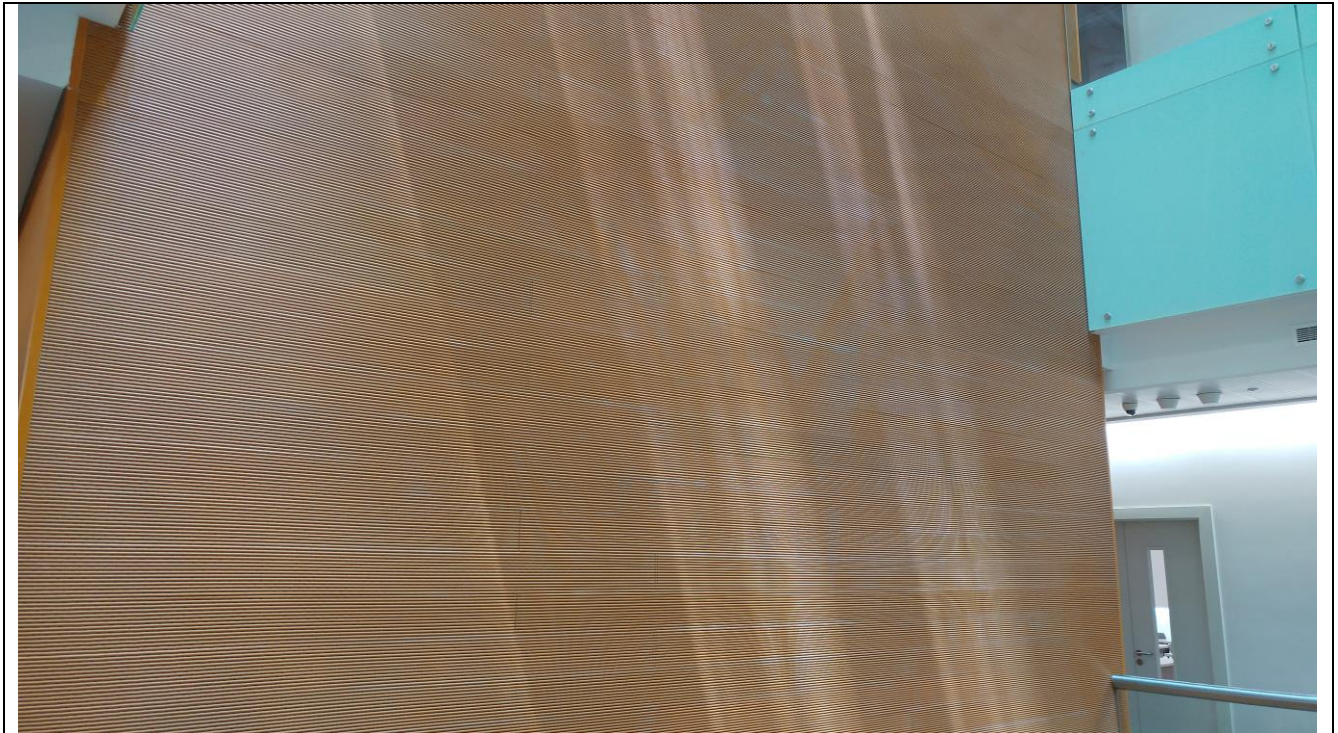
The campus extension uses horizontal-ribbed surfaces as wall covering which is especially problematic on tall vertical surfaces such as the atrium. The figure to the right and below (closeup) show how the horizontal ribs collect dust and hard to clean especially in the middle and between floors.

The cleaners use mops on long poles but there is a limit to how far these mops can remove dust from the surface. While vertical ribs would have made the motion easier, the question of reach still remains.

Design and prototype a way to clean these tall surfaces (figure on right). Assume the cleaners can work together and can position themselves on different floors.

The student team must have interests in human performance, ergonomics, safety, and mechanical design. A working model preferred but if you cannot test safely, a scale model can be used. Get permission from FM before you do any testing.





Rate your proposal on the following scales (1 = low, 9 = high)

Hand-On Experience. Students will get their hands dirty measuring, destroying, or building things.	1 2 3 4 5 6 7 8 9
Design & Creativity. Students must generate novel (new) ideas, not to be found elsewhere (YouTube, etc.)	1 2 3 4 5 6 7 8 9
Content Learning. Students will have to learn some background information about the problem.	1 2 3 4 5 6 7 8 9
Synthesis. Students will have to use knowledge from a variety of disciplines, usually taught in separate courses (humanities, math, science, engineering).	1 2 3 4 5 6 7 8 9
Real-World Context. The project is realistic and is important to people beyond just researchers and students.	1 2 3 4 5 6 7 8 9
Interdisciplinary. Techniques from multiple branches of engineering are important for the project.	1 2 3 4 5 6 7 8 9
Skill-Building. Students will have the opportunity to develop important skills, like programming or machine tool usage.	1 2 3 4 5 6 7 8 9
Team-building & Collaboration. The project does not easily allow students to totally break the work into many parts that can be completed separately by individual team members.	1 2 3 4 5 6 7 8 9
Motivation. The project concerns a topic that students find exciting and students have some freedom to solve the problem in their own way (i.e. multiple solutions are possible).	1 2 3 4 5 6 7 8 9
Self-Directed Learning. Students will have to do research and answer many of their own questions.	1 2 3 4 5 6 7 8 9
OVERALL DIFFICULTY: Based on your scores above, how hard do you think the project is for 5 freshman?	1 2 3 4 5 6 7 8 9