Coarse Road Noise Test Cell Safety

Overview
Bridgestone Americas has several labs at their research facility in Akron, Ohio. When any lab is conducting a test Bridgestone always wants to ensure the safety of all employees. This project was created because there is an inherent need to increase safety in the coarse road noise test cell during operation.

Objectives
Bridgestone requested a design that would act as a cost-effective isolation method to keep pedestrian traffic away from the CRN lab test fixture during operation. Additionally, the noise level of approximately 80 dB could be a physical hazard if individuals are in the room while a test is being conducted. The proposed designs will reduce the noise level in addition to keeping all employee’s safe.

Approach
- The team first visited the test site in Akron, Ohio to get a sense of the customer’s needs.
- Once customer needs were established the team began brainstorming different potential solutions that could solve the problem.
- As concepts were generated there was a need to determine the advantages and disadvantages of each concept.
- Once the concepts were finalized the team did research to determine what products are available on the market in addition to relevant patent ideas.
- Concept selection occurred then the team began to build a 3D model of the proposed design.
- The team performed noise tests on noise reducing materials to verify that it would protect the technician from hearing loss.
- A second prototype with added clarity was created to visually show all concepts that the team came up with, in addition to the recommended one.
- It was determined from the results that a card access reader and hearing protection would work best for Bridgestone Americas.

Outcomes
- The project provided the sponsor with four different concepts that solved the initial problem.
- If the sponsor uses the recommended design provided, they will save over $18,000 of the initial proposed budget.
- The project design will keep all employee’s safe during any test in the coarse road noise test cell.
- There will be lag time if the recommended design is used.