

This entry would be likely to receive a **score of 0**, based on the EDPPSR. The student(s) have presented design attributes (ALT: measurable attributes of a possible design solution to the problem identified) rather than design requirements; at best, readers are forced to draw inferences from the content of this entry as to what the project designer(s) might have considered requirements. For example, from the description in the second bullet (“an additional plastic support bar running down the back of the individual...”), one can infer that “posture support and stabilization” were considered to be design requirements. However, this is doing the work of the project designer(s). As is, there are no clear design requirements (and therefore, no evidence of prioritization).

The fact that the student(s) jumped right to measurable attributes of their design solution suggests that they simply used this section of the portfolio as a place to house work they had done WITHOUT reading and/or considering the characteristics of a successful entry for Element C. The entry shows some good thinking but a lack of attention to the rubric that could be easily remedied.

Engineering Design Process Portfolio Scoring Rubric Component and Element Titles

Component I: Presenting and Justifying a Problem and Solution Requirements

- Element A: Presentation and justification of the problem
- Element B: Documentation and analysis of prior solution attempts
- **Element C: Presentation and justification of solution design requirements**

Component II: Generating and Defending an Original Solution

- Element D: Design concept generation, analysis, and selection
- Element E: Application of STEM principles and practices
- Element F: Consideration of design viability

Component III: Constructing and Testing a Prototype

- *Element G: Construction of a testable prototype*
- Element H: Prototype testing and data collection plan
- Element I: Testing, data collection and analysis

Component IV: Evaluation, Reflection, and Recommendations

- Element J: Documentation of external evaluation
- *Element K: Reflection on the design project*
- Element L: Presentation of designer’s recommendations

Component V: Documenting and Presenting the Project

- Element M: Presentation of the project portfolio
- Element N: Writing like an Engineer

Please Note: Elements M and N require no submission from the portfolio author(s) and are intended to be scored based on the portfolio work as a whole from what has been submitted from Elements A through L

Element C - Presentation and justification of solution design requirements

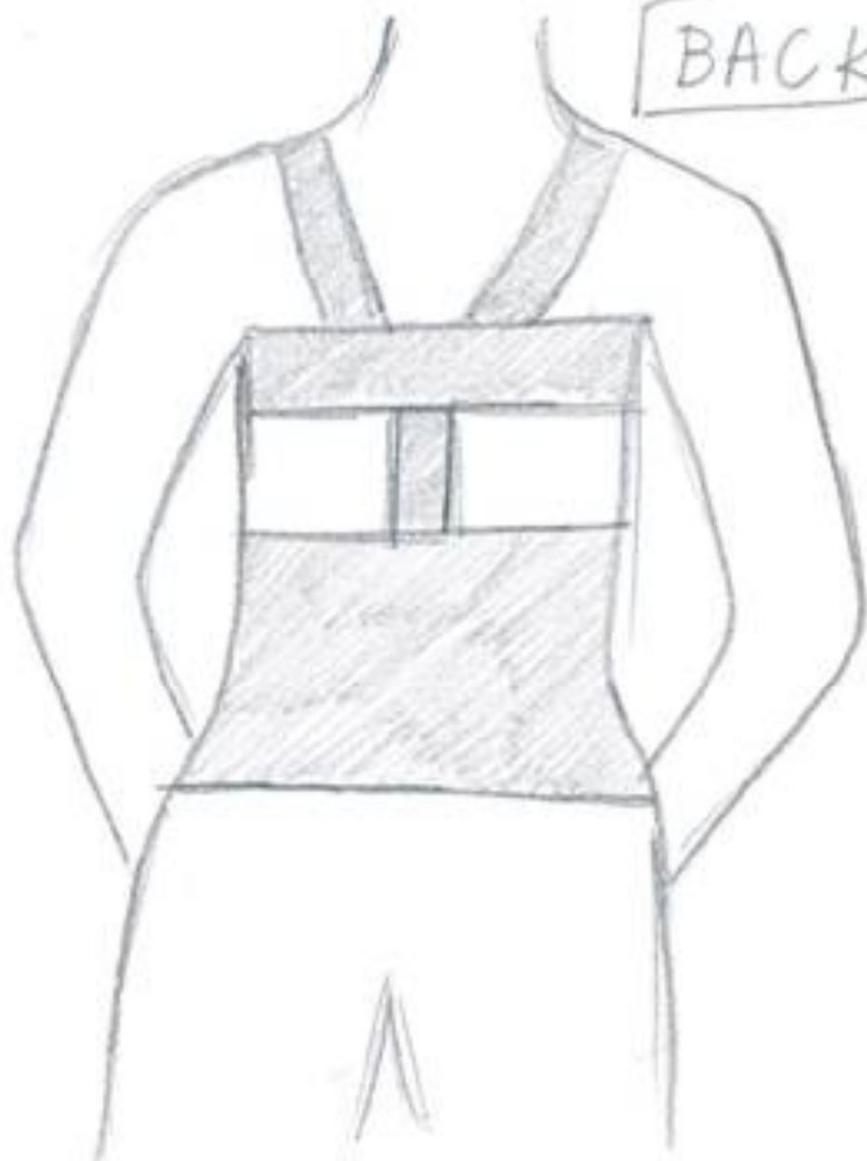
- 5** Design requirements are listed and prioritized, and they are consistently clear and detailed; these design requirements presented are consistently objective, measurable, and they would be highly likely to lead to a tangible and viable solution to the problem identified; there is evidence that requirements represent the needs of, and have been validated by, many if not all primary stakeholder groups.
- 4** Design requirements are listed and prioritized, and they are generally clear and detailed; these design requirements presented are nearly always objective and measurable, and they would be likely to lead to a tangible and viable solution to the problem identified; there is evidence that requirements represent the needs of, and have been validated by, several primary stakeholder groups.
- 3** Design requirements are listed and prioritized, and they are generally clear and somewhat detailed; these design requirements presented are generally objective and measurable, and they have the potential to lead to a tangible and viable solution to the problem identified; there is evidence that requirements represent the needs of, and have been validated by, at least a few primary stakeholder groups.
- 2** Design requirements are listed and prioritized, but some/all of these may be incomplete and/or lack specificity; these design requirements may be only sometimes objective and/or measurable, and it is not clear that they will lead to a tangible and viable solution to the problem identified; there is evidence that the requirements represent the needs, of/and or have been validated by, only one primary stakeholder group.
- 1** An attempt is made to list, format, and prioritize requirements, but these may be partial and/or overly general, making them insufficiently measurable to support a viable solution to the problem identified; there is no evidence that the requirements represent the needs of, or have been validated by, any primary stakeholder groups.
- 0** Design requirements are either not presented or are too vague to be used to outline the measurable attributes of a possible design solution to the problem identified.

Solution Justifications

Conceptual sketches of the front, back and side of the expected prototype

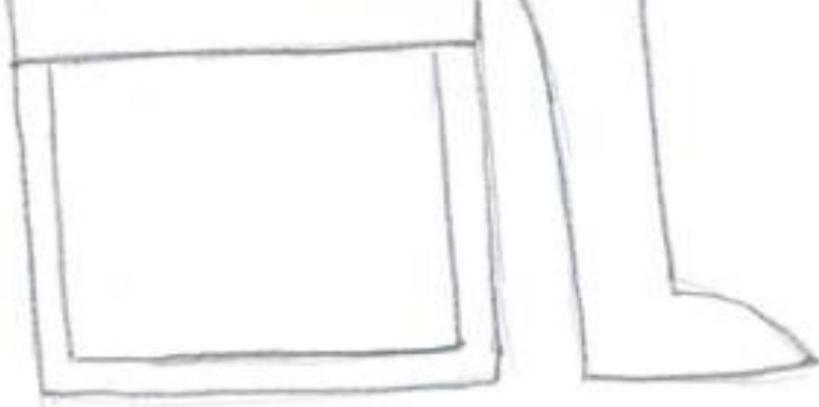


BACK



SIDE





- It accommodates to the ergonomics by being made while plastered against a mannequin's body so that it is form fitting. It is also designed with supporting shoulder straps - a feature uncommon to lower torso braces.
- There is an additional plastic support bar running down the back of the individual that adds extra posture support and stabilization.
- The sturdy brace support that wraps around the waist is closed by two straps or clasps of Velcro that will accommodate to the sizes of different body types.
- Unlike other body braces, this one is the combination of a posture corrective brace and a lumbar back brace. The additive powers of these two braces combine to produce comfort for acute back pain and coincidentally a posture straightener. It also alleviates stress off the spinal region.