PRODUCT DEVELOPMENT OF A FIRE HOSE BASKET
- PROMOTING ERGONOMICS FOR FIREFIGHTERS

Background:
A study on ergonomics in the profession as a firefighter conducted by the Research Institutes of Sweden (RISE) showed that fire hose deployment was very physically exhausting. This study also revealed that some load may become heavy and difficult to carry due to the design of the equipment [1]. Therefore there is a need for equipment that is more ergonomically designed. This study has the purpose to develop an ergonomically designed hose basket that can be used by the firefighters when storing or carrying a fire hose. The development progressed from the hose basket in Figure 1.

Research questions:
I. What are the problems on the existing products available on the market when it comes to moving hose?
II. How can the problems be avoided considering the requirements of a hose basket?
III: How can the equipment be improved in ergonomics?

Method:
The study concludes a feasibility study with interviews and field trips. The information from the feasibility study were used to make a house of quality and a idea generating in two steps that ended up with a concept choice. The material of the parts in the concept was chosen with CES Selector 3.2. Two possible materials were found, these were facing towards each other for the material requirements. The fabric cover was chosen to be PET. The concept was then constructed in CAD and a prototype was made that was tested by firefighters who then did a evaluation of the design.

Results:
The results advocated both improvements and setbacks of the new hose basket. Primarily, the hose basket became better for shorter people. Taller people on the other hand could find it little difficult to lift and position it in place. However, all the firefighters that tested the product felt that the new hose basket was more comfortable than the standard basket to move around when it were positioned, especially in terrain and in stairs. Certainly, some improvements are needed for ideal functioning of the hose basket.

| Simplicity to pack | - |
| Simplicity to close | + |
| Simplicity to move around | + |
| Feeling to carry | 0 |

References: