

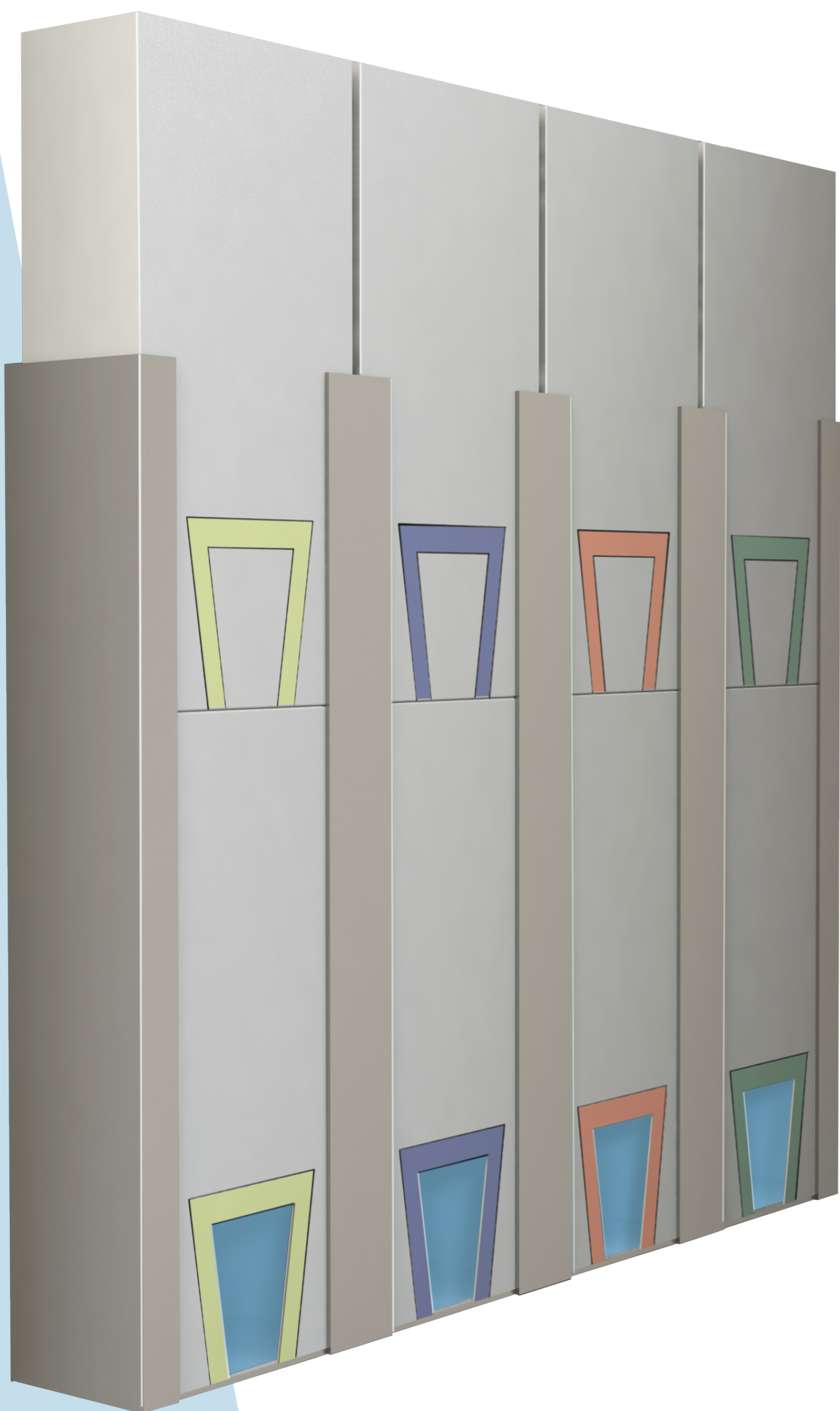
GloVe

The vertical glove dispensing system

Towards greener ICUs

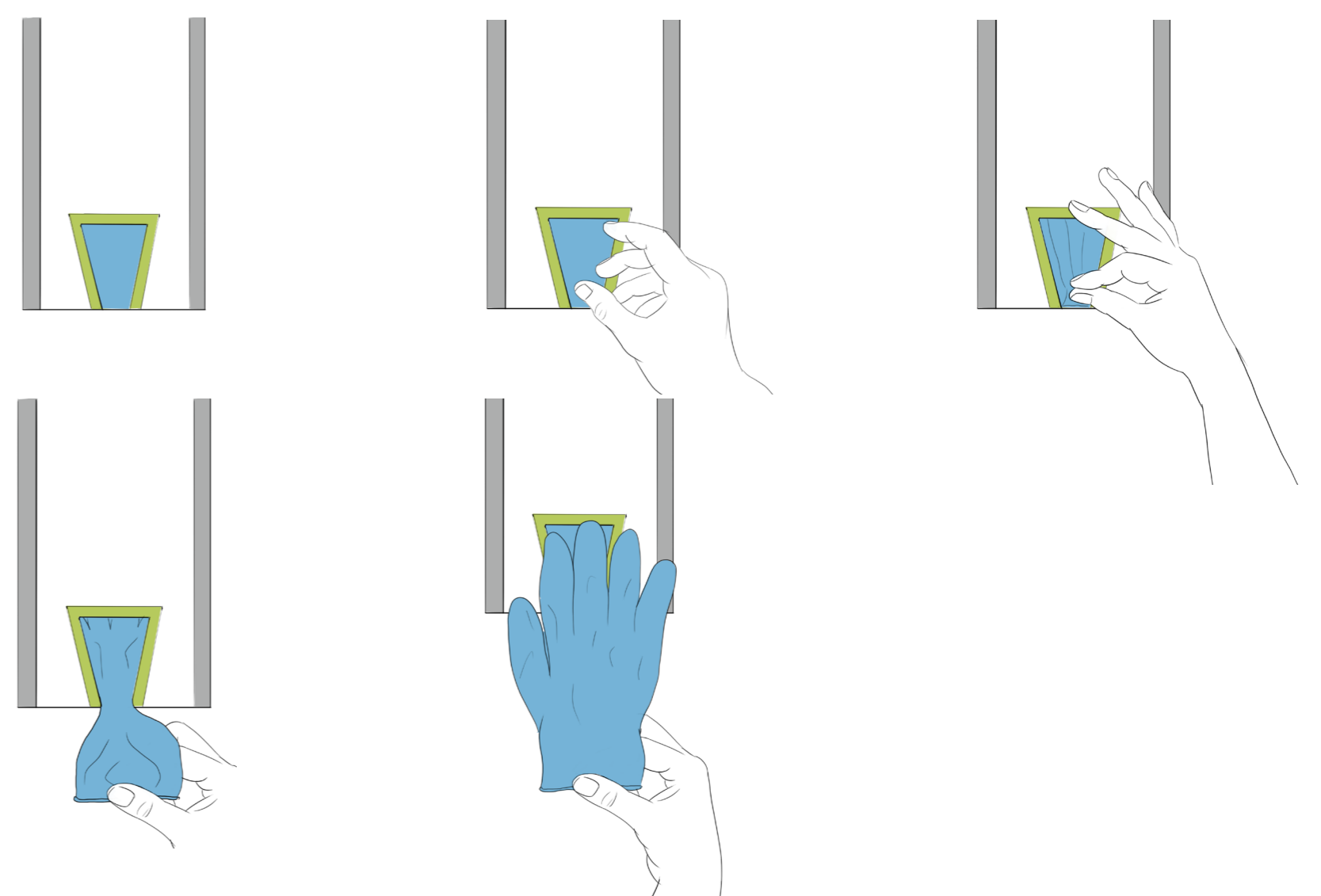
The healthcare sector is one of the most polluting sectors in the Netherlands. In the ICU care is delivered to critically ill patients. The complexity and intensity of care makes the ICU one of the most resource-intensive departments of the hospital. Disposable nitrile gloves are identified as one of the hotspots contributing to the negative environmental impact created by the ICU. This is due to the high frequency of use, 108 gloves per patient per day and the resource-intensive production of gloves.

Due to the poor design of the current glove boxes, too many gloves come out of the boxes. Subsequently, the gloves are disposed of unused or are pushed back into the box with risks of contamination. To limit the environmental impact of gloves in the ICU, the GloVe dispensing system is designed. GloVe dispenses the gloves one by one and reduces the risk of glove contamination.



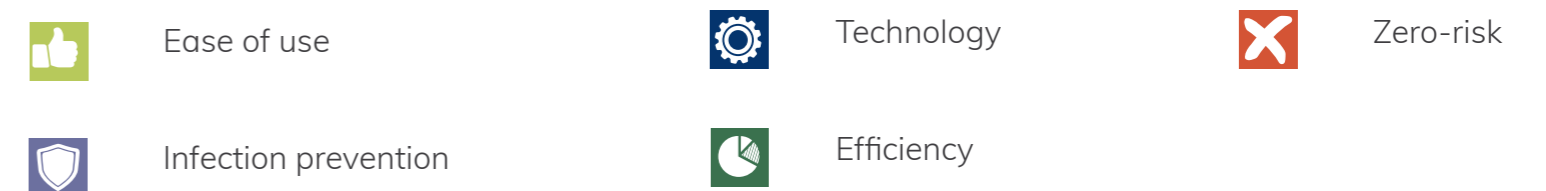
The use

The GloVe boxes are presented vertically and each size of gloves does have its own box colour. The colour allows the user to see at a glance from which box gloves should be taken. The V-shaped opening presents one glove at a time, with the cuff first. The smaller opening forces the user to grab the gloves in a controlled manner. The glove can be picked with the thumb and forefinger. With a downward movement, the glove is pulled out of the box. The gloves are presented unfolded and are ready to put on.



The design building blocks

The design of GloVe is created by incorporating the five Design Building Blocks: (1) ease of use, (2) infection prevention, (3) technology, (4) efficiency and (5) zero risk. The Design Building Blocks consist of main insights from the extensive research on different levels and perspectives on how to reduce the environmental impact of gloves in the ICU in the short term.



Storage space

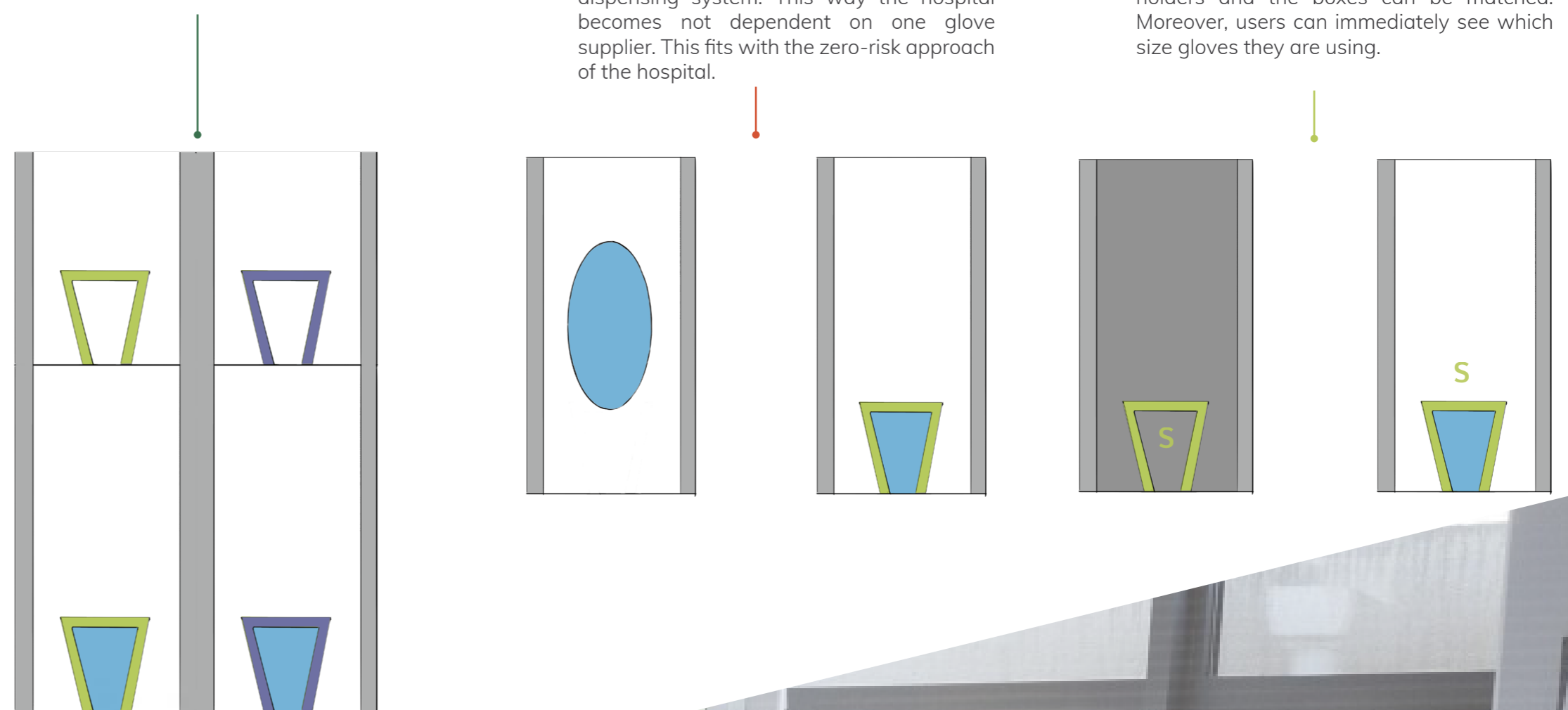
The GloVe boxes are positioned vertically, so the new boxes can be stored on top of the boxes that are in use. This way the new boxes don't have to disturb the workspace.

General dimensions

To implement GloVe a different design of the dispensing system is needed. But, the glove box still applies the general dimensions, so general boxes can still be placed in the dispensing system. This way the hospital becomes not dependent on one glove supplier. This fits with the zero-risk approach of the hospital.

Colour matching

Every size does have its own colour GloVe box, so that the size is visible at a glance. The colours are represented on the dispensing system as well. This way the colours of the holders and the boxes can be matched. Moreover, users can immediately see which size gloves they are using.



Cuff first

The gloves are dispensed by grabbing the cuff. This way the gloves are not touched with bare hands on the parts that come into contact with the patient.

Small opening

The small opening prevents undesirable behaviour. It is almost impossible to put gloves back in the box, which reduces the risk of contamination of gloves in the box. This can prevent infections and therefore reduce the environmental impact indirectly.

Automated stacking

The V-shaped opening and vertical dispense system only work as intended if the gloves are stacked vertically, without intertwining. This requires automated stacking, which is already applied by some manufacturers. This technology can therefore be applied in the short term.



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Reducing the environmental impact of gloves
used in the ICU
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Integrated Product Design - Medisign

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