

HOSPITALS ARE FILLED WITH CHALLENGES

AMONG THE MANY CHALLENGES OF A HOSPITAL ARE THE REDUCTION OF SPREADING OF INFECTIONS AS WELL AS REDUCTION OF CONSTRUCTION AND OPERATING COSTS. NATURALLY, THIS ALSO APPLIES TO LANDSSJÚKRAHÚSIÐ, THE NATIONAL HOSPITAL OF THE FAROE ISLANDS



Landssjúkrahúsið



TOGETHER WE SOLVE THE CHALLENGES

LOGISTICS THAT BENEFIT THE BUSINESS

Landssjúkrahúsið is specialising in 29 health care areas aiming to offer the Faroese population and international patients high-quality health service. The hospital has 850 employees, 160 beds, and 8,000 admissions per year as well as 60,000 outpatients annually.

Founded in 1924 Landssjúkrahúsið was first expanded in the 1960's. Further expansions followed and a new building will be completed in 2021.

A SOLUTION FOR THE FUTURE

In close cooperation with Landssjúkrahúsið and Landsverk – the Faroese institution overseeing road, harbour and entrepreneurial tasks – the companies Logi Systems ApS and Semi-Staal A/S have developed a concept that meet the challenges.

THE CONCEPT

In all its simplicity the concept is to keep clean and dirty beds as separated as possible, and to ensure a consistent good cleaning of the beds.

REDUCING THE SPREAD OF INFECTION

To fight the spread of infection, four operations are involved:

1 The new building has no multi-bed wards, which is essential in stopping infections spreading between patients.

2 There are separate clinical and public hallways as separating transport of beds will help reduce the spreading of infections between patients, clinical personnel, and visitors.

3 Specially built elevators/towers will transport and store beds. Furthermore, the beds are stored in separate towers, one for used and one for clean beds.

4 A uniform bed washing machine and mattressdisinfector working automatically will ensure a very high hygiene standard.

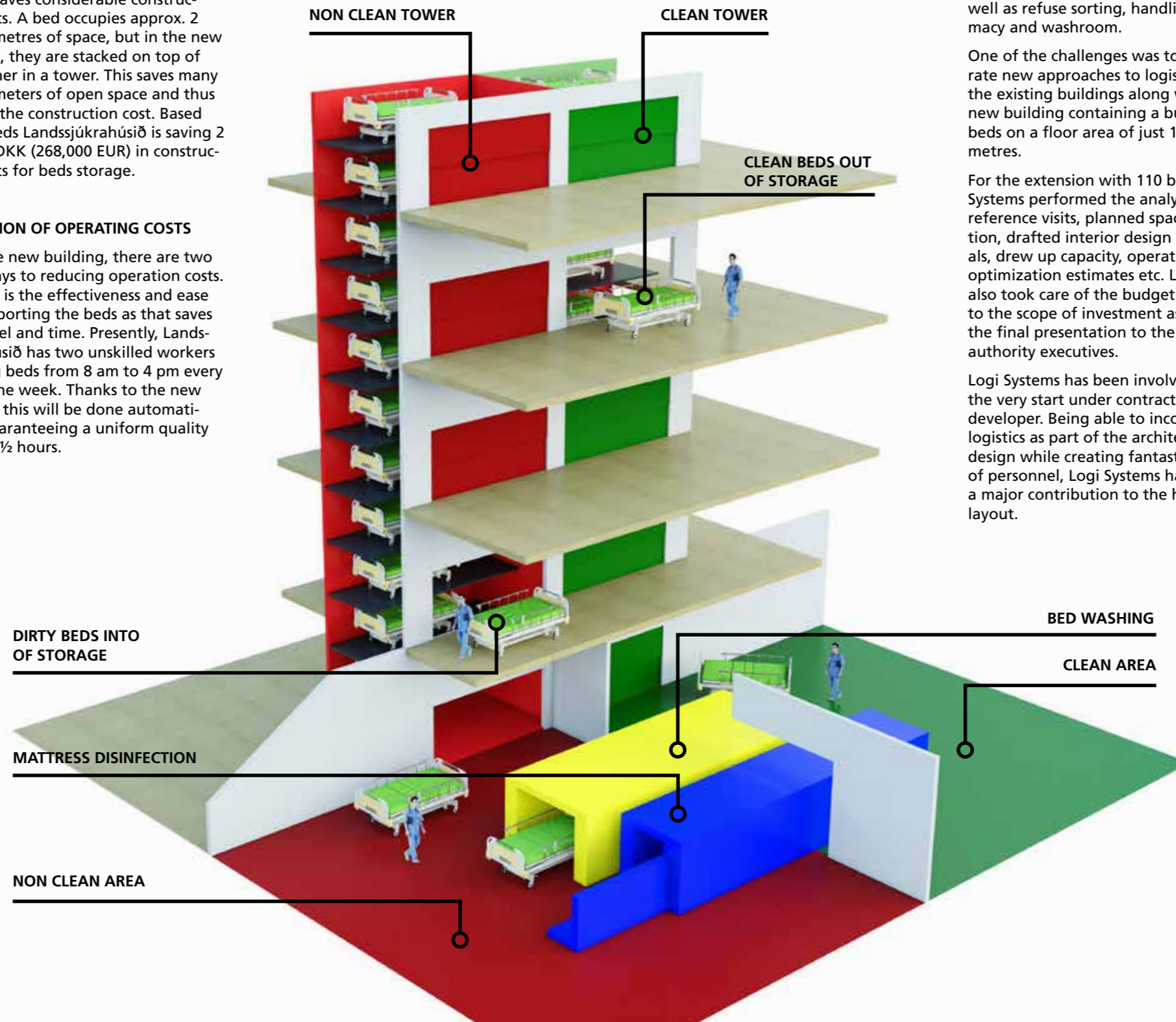
REDUCTION OF COST

Storing clean and used beds in separate towers saves considerable construction costs. A bed occupies approx. 2 square metres of space, but in the new building, they are stacked on top of each other in a tower. This saves many square meters of open space and thus reduces the construction cost. Based on 48 beds Landssjúkrahúsið is saving 2 million DKK (268,000 EUR) in construction costs for beds storage.

REDUCTION OF OPERATING COSTS

With the new building, there are two main ways to reducing operation costs. The first is the effectiveness and ease of transporting the beds as that saves personnel and time. Presently, Landssjúkrahúsið has two unskilled workers cleaning beds from 8 am to 4 pm every day of the week. Thanks to the new solution this will be done automatically, guaranteeing a uniform quality within 2½ hours.

PRINCIPLE OF STORAGE AND WASHING HOSPITAL BEDS



Landssjúkrahúsið chose Logi Systems as partner in developing the warehouse, storage automation, and disposition as well as refuse sorting, handling, pharmacy and washroom.

One of the challenges was to incorporate new approaches to logistics into the existing buildings along with the new building containing a buffer of 40 beds on a floor area of just 14 square metres.

For the extension with 110 beds, Logi Systems performed the analysis, made reference visits, planned space allocation, drafted interior design proposals, drew up capacity, operation and optimization estimates etc. LogiSystems also took care of the budget connected to the scope of investment as well as the final presentation to the health authority executives.

Logi Systems has been involved from the very start under contract to the developer. Being able to incorporate logistics as part of the architecture and design while creating fantastic facilities of personnel, Logi Systems has made a major contribution to the hospital layout.

Logi Systems combines more than 25 years of experience and expertise with a practical approach in order to provide specific proposals and solutions for the further development of warehouse, production, and logistics systems. From case to case the focus is the situation of the logistics, identifying specific needs and collaborating with the customer and skilled suppliers to find the optimal solution.

Logi Systems only considers the task complete when the logistics system is firmly embedded with employees trained for operations accordingly.

SERVICES WITHIN WAREHOUSE AND HOSPITAL LOGISTICS MAY INCLUDE:

- Specific warehouse and logistic automation
- Optimization and efficiency improvement of logistic functions
- Layout and total solutions
- Distribution and logistics centres and e.g. central warehouses
- Web and Internet solutions
- Buffer warehouses in the hospital
- Pick & pack and sorting solutions
- AGV solutions
- Automatic "distribution" units

SERVICES WITHIN HOSPITAL LOGISTICS MAY ALSO INCLUDE:

- Automation and process optimization of e.g. handling and storage of beds
- Building and machine design according to bed towers
- Workplace and process design

WASHING AND AUTOMATION SYSTEMS - BEDS

Semi-Staal A/S has 40 years of experience in designing, producing, and installing solutions within the food, hospital, and pharmaceutical industries.

Semi-Staal constantly looks for smart solutions to simplify cleaning and handling processes, making it easy for the customers to meet hygiene standards and automate workflows. The Mediclean solutions for hospitals are created with the main objective to help reducing re-hospitalization days by improving hygiene solutions for hospital beds, mattresses, and internal transport.

Mediclean Solutions is the most efficient and timesaving hygiene system on the market, developed for hospitals working with high technology and big production in centralized cleaning stations. It is an automatic tunnel system running from unclean into clean area in order to avoid and reduce contamination.

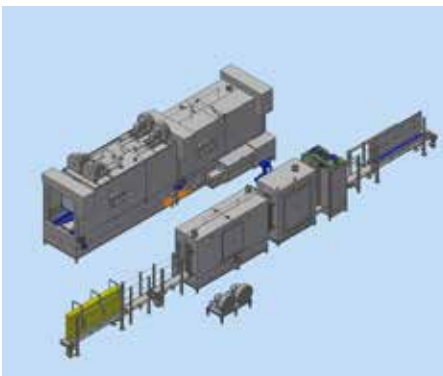
The technology for mattresses is a thermic ultrasound developed by SonoSteam.

- ❑ Automatic cleaning and disinfection of beds in only 2½ minutes including drying
- ❑ Automatic disinfection of mattresses with SonoSteam® in only 25 seconds
- ❑ Automatic cleaning and disinfection of handicap devices
- ❑ Automatic disinfection of pillows with SonoSteam®
- ❑ Documented results <2,5 CFU/m²
- ❑ Best possible work environment – ergonomic
- ❑ Same result on all beds and mattresses
- ❑ Low operation costs
- ❑ Simple system easy to run and maintain

Mattresses are placed on a lifting table manually or by a robotic vacuum system. Steam is sent through special nozzles with high speed, killing the microorganism. The nozzles create ultrasound which catalyzes the steam in order to give free access to bacteria on the surface and into the upper microstructure on the mattresses. Afterwards the mattresses are dried by clean air from air knives with 270 km/h.

The process for beds is a chemo thermic disinfection technology. Beds are placed on a conveyor system manually or by an AGV and are transported through a tunnel system. Beds are cleaned and disinfected with water at temperature at 55-60°C with detergent. Hereafter the beds are dried by clean air from air knives with 270 km/h.

After these processes, beds and mattresses are clean, bacteria free and completely dry, ready to be used.



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