



HEALTH AND SAFETY  
AUTHORITY

# Ergonomics Good Practice Case Study

## Education Sector

State Examinations Commission

**Company:**

State Examinations  
Commission

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This case study demonstrates how the State Examinations Commission managed ergonomic risks through the introduction of a range of engineering and organisational improvements in the way work was carried out to avoid or reduce the risk of musculoskeletal injury.

**The Project  
Team Involved**

**Front:**

*Derek Harrington, Service Officer,  
TJ Galvin, Service Officer  
Dean Reddin, Service Officer,*

**Back:**

*Matthew Welsh, Procurement  
Clerical Officer, Áine Murray,  
Executive Officer,  
Procurement, Danny  
Reddin, Head Service  
Officer, John  
McDonnell, Assistant  
Principal Officer*



## The Organisation

The State Examinations Commission (SEC) is responsible for the arrangement and certification of the Leaving and Junior Certificate Examinations in Ireland each year. The SEC provides examination stationery to almost 5,500 Examination Centres throughout the country for candidates taking the State Examinations.

## 01 | Stage 1: Problem Identification

### Description of Task

The State Examinations Commission (SEC) is continually improving its methods to improve the products and services to all stakeholders involved in the examination process. The stationery the SEC provides to 5,500 examination centres was issued in large metal boxes which could weigh up to 45kgs when full.

The process of transporting these metal boxes resulted in potential manual handling risks at all stages of movement.

The SEC realised that it needed to consider alternative substitutes for the metal boxes that were used. The main issues to be addressed were the design and weight of the metal boxes – as the original metal boxes were very heavy and had very sharp edges that were hazardous – with a possibility of leading to physical harm or injury.

### Evidence of Risk Factors

Due to the carrying or lifting of the heavy metal boxes onto pallets, ergonomic risk factors were evident. There was also a requirement for repeated lifting and carrying of the metal boxes during the transfer to and from the exam centres.

The SEC placed stickers on the stationery boxes to make staff handling the boxes aware of the risk due to the weight of the metal boxes. The stickers also detailed an instruction to complete a two-person lift.



## 02 | Stage 2: Problem Solving Process

The team contacted companies involved in the distribution of large quantities of similar material or who had involvement in the distribution of stationery material.

The SEC wanted to source a new box design that would be durable, lightweight, sturdy and secure. They wanted to find a more sustainable and user-friendly product that would be effective in the distribution of stationery material to schools.

Their research proved successful in the procurement of the plastic box. The plastic boxes that were introduced weighed 3kg when empty, compared to the metal boxes that weighed 13kg when empty.

# 02

## Stage 2: Problem Solving Process (cont'd)

### Problem Solving Activities

The objective was to reduce exposure to work hazards such as:

- working in awkward or uncomfortable postures, and
- lifting heavy loads such as the metal boxes.

Using various tools including the Mac Tool, NIOSH lifting equation, to assess individual manual handling tasks, the team gathered all of the relevant information and set time aside for brainstorming in order to identify the risks and develop possible solutions.



# 03

## Stage 3: Outcome

### Main Interventions

Procurement, senior management and internal staff brainstormed ideas on the procurement of the new plastic boxes. They sourced a prototype plastic box and carried out a pilot study to determine if the new plastic box was suitable. Feedback received from internal and external staff, such as the transport companies involved in the pilot project, was very positive.

The agreed change was to replace the metal boxes with the new plastic boxes that reduced the actual weight of the stationery box. An empty metal box weighed 13kg. The plastic box weighed 3.5kg, 9.5kg less in weight. This resulted in a significant improvement with minimal exposure to manual handling risk as a result of using a lighter box. In the process, six tonnes of metal boxes were recycled.

# 04

## Stage 4: Results

The metal boxes were replaced by the new plastic boxes. This had a positive impact on the staff members' ability to carry out the work activity effectively through less exposure to manual handling risk and improved musculoskeletal health.

This project was very worthwhile and it was a team effort where everyone came together to investigate possible solutions that would eliminate the need for people to handle 5,500 heavy metal boxes that were being delivered from the SEC head office in Athlone to the exam centres throughout the country.

There was a recognition of the importance of risk management and the need to take a step by step approach when problem solving and piloting the proposed solution to ensure that it was effective and met requirements.

The total cost of the improvement was €123,689.54.

### Health benefits (including risk factors like force, repetition, posture eliminated or reduced)

There were health benefits associated with this project such as the protection of staff health and improved performance. Appropriate measures were put in place to avoid or reduce risk of injury.

### Evidence of innovation or creative thinking

As with all projects within the organisation, creative thinking is a cornerstone of the SEC practice and this resulted in them procuring a more user-friendly product for transporting stationery to the exam centres.

### Evidence of team work

There is evidence of both internal and external team work while procuring and piloting the product. Management consulted with staff and external stakeholders on how the job is done, and a pilot project was set up to try out the product, which proved successful.



# 04

## Stage 4: Results (cont'd)

### Evidence of consultation and communication with those that work on this production process

SEC management consulted with the staff who do the job, and a number of other colleagues, to identify an appropriate solution and subsequently new plastic boxes were procured and all operators were trained on how to use them.

### Evidence of any productivity or efficiency improvements

The plastic boxes were a lot easier to handle and there was a quicker turnaround of the boxes.

### Evidence of reduced lost days due to accidents or ill health

There was no evidence of loss of days due to ill health.

### Evidence of management commitment and investment

Management recognised that there was a need to address the potential manual handling risks as a result of lifting the metal boxes and gave the necessary resources to address the issues identified and to develop an appropriate solution.

### Return on investment

The return in investment is a reduction in the possibility of injury to staff.

The use of the new plastic boxes eliminated the requirement to provide metal locks to secure the old metal stationary box. A new plastic tag system was introduced to maintain the security and integrity of the plastic boxes and this solution was cost effective.

The cost of the metal lock per stationary box was €15 per lock. Each year most of the locks required replacement as they would not be returned or would be returned without the key thus rendering them useless.

The plastic seals cost €0.08 cent each. A superintendent would require four seals per day over the 16-day period representing an overall cost of €5.00 per centre.

This resulted in a saving of €10 per centre which is an overall saving of €55,000.

### Evidence of increased knowledge and awareness of ergonomics

There is an increased knowledge and awareness of ergonomics within the workplace. It makes good business sense to address ergonomic risks in this manner and evidence has shown that a proactive and systematic ergonomic approach will provide a work environment where people can develop new skill sets, including communication, critical thinking, creative thinking, problem solving, brainstorming, technical and influencing skills.

These skills are very important in managing ergonomic risk effectively but can also be applied to other aspects of the business.

### Other benefits

Appropriate training was provided so that workers understood what changes were put in place, how the changes addressed ergonomic risk and how workers should carry out the task using the appropriate equipment provided.

The SEC also introduced a hand trolley for each of the 5,500 examination superintendents employed each year to invigilate the examinations. These were to provide a user friendly method of transporting the examination box from the distribution centre to their car and also from their car to the school premises. The trolleys provided were lightweight and could also be folded to be inserted into a plastic box for return to the SEC at the end of the examination session.

The superintendents were extremely satisfied with the provision of the hand trolley as they provided a practical solution for the transport of the examination paper boxes.

The SEC also provided a training video to show superintendents how to use the trolley effectively and safely.



## Client Testimonial

*"The stationery the State Examinations Commission provides to 5,500 Examination Centres was issued in large metal boxes that could weigh up to 45kgs when full. The process of transporting these metal boxes resulted in potential manual handling risks at all stages of movement. Therefore we needed to consider alternative substitutes which would be durable, lightweight, sturdy and secure. Our research proved successful in the procurement of plastic boxes that weighed 3.5kg when empty, compared to the metal boxes weighing 13kg when empty. This was a more sustainable and user-friendly product effective in the distribution of stationery material to schools. We carried out a pilot study to determine if the new plastic box was suitable and internal and external feedback was very positive. The metal boxes were replaced by the new plastic boxes. This had a positive impact on the staff member's ability to carry out the work activity effectively resulting in less exposure to manual handling risk and improved musculoskeletal health in the workplace."*

*John McDonnell, Assistant Principal Officer*