



**Client**  
Murphy

**Team**  
Murphy Plant

**Sector**  
Group

**Project start**  
09/18

**Project end**  
03/19

**Value**  
N/A

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ID-00155

## PROJECT OUTLINE

Work related musculo-skeletal disorders (WRMSD) are a significant issue within the construction industry.

According to the Health and Safety Executive, “An estimated 6.6 million working days were lost due to WRMSDs, an average of 14 days lost for each case. WRMSDs represent 24% of all days lost due to work-related ill health in Great Britain in 2017/18. Within the total number of 6.6 million days lost due to WRMSDs, Work Related Upper Limb Disorders (WRULDs) account for around 2.6m of days lost, with back disorders around 2.2m of days lost and Work Related Lower Limb disorders (WRLLDs) 1.7m days lost.

## TESTIMONY

“I think it’s wonderful! This can really change the face and image of the industry. Even though we are branching into the unknown, it certainly does look promising.”

**- Sinan Unlu,**  
**J Murphy & Sons Ltd**

## KEY CHALLENGES

WRMSDs, while not life threatening, can impair the life quality and mobility of large numbers of the working population.

WRMSDs are most prevalent in the agriculture, forestry and fishing industries, closely followed by construction.

Given the physical, manual labour of construction projects, it is difficult to effectively prevent WRMSDs from affecting the workforce.

Complacency, work programming and culture are all significant challenges in supporting staff in their work and ensuring they are protected from long-term damage arising from manual handling and WRMSDs.



## SOLUTION / INNOVATION

Mechanical lifting aid and support solutions that redistribute forces throughout the body. By safely transferring the load through the supported arms and through the trunk, force is resisted through the trunk and legs – which are stronger and more stable.

These “exo skeletons” are comprised of a network of springs and carbon plates. These lightweight solutions are used extensively throughout the automotive industry to reduce stress and harm that operatives are exposed to because of manual, repetitive or awkward tasks.

These have been trialed within Murphy to understand which applications and tasks benefit most from such an intervention, to understand the impacts on stress, fatigue, user experience and productivity.

The solutions tested were the [Eksobionics Eksovest](#) and the [COMAU Mate](#).

## KEY BENEFITS

- Reduced potential to develop WRMSD
- Promotes good posture and practise when doing manual labour
- Potential for increased productivity
- Potential for increased quality of work

## COSTS / SAVINGS / ROI

These solutions cost between £4,000 and £7,000, and are available for general or individual configuration.

Whilst there is no immediate financial return on investment arising through the implementation of these suits, there is a significant opportunity to mitigate risk. The long term benefits to a team using exo skeletons, and the potential reduction in injuries that require time off work, is substantial.



Sinan Unlu

## IDEA ORIGINATOR

[Sinan Unlu](#) proposed this project. Sinan is an Assistant Design Coordinator in the Construction and Property sector.

This part of the business carries out a lot of work that requires manual work in difficult to reach places, often at or above waist height for prolonged periods. This work can also tend to be repetitive. This can result in stress and fatigue for those individuals carrying out the task.

## CHAMPIONS

A number of teams has supported this project, from across the Murphy business. Coordinated by [Duncan Warriner](#) (Head of Operations) and [Chris Hawksworth](#) (Operations Manager), the Leeds Specialist Welding Services (SWS) team helped out by hosting a demonstration day at the yard, where a number of operatives had the chance to try them on.

Following the success at Leeds, [Paul Barrett](#) and [Dominic Pickering](#) at the Ollerton Yard coordinated a longer trial to push the concept further. Nick Bott, Scott Wilkinson and Stephen Sutcliffe – all HGV fitters - took part in the trial and gave comprehensive feedback on the solution.

[Karen Scott](#) also supported the project by capturing images and videos to circulate around the business.

## FEEDBACK

The demonstration day at the Specialist Welding Services (SWS) Yard in Leeds produced very positive results. Welders, pipe fitters and stores operatives were present and provided positive feedback, citing the support and lightweight elements of the exo skeleton as important elements.

The trial conducted within the Murphy Plant Yard at Ollerton produced mixed results. The trial lasted one week, and the group consisted of a group of HGV fitters. Overall, the trial concluded that these solutions are easy to wear, easy to use, and help improve posture. However, their ability to reduce fatigue whilst completing a task was contested between participants.

The participants reported a reduced degree of muscle fatigue in their upper and lower arms. Conversely, some reported that the use of these suits simply "shifted" the pressure elsewhere and reported an increase level of fatigue in other parts of their body.

## FUTURE OPPORTUNITY

Further work is required to establish which sectors within the construction industry stand to benefit from the application of this solution. A longer trial is required, with more participants, to understand the benefits and risks that specific roles face because of use. Interface with experts on WRMSDs like the National Health Service is advised, to appreciate the long term impacts of this solution, and also to better understand issues around fatigue and force distribution.

Overall, this solution is promising and has lots of potential to positively affect those workers that are most at risk when other forms of risk prevention have been exhausted. A task-specific approach is recommended and not a blanket approach to application, as we must ensure we are using the right tool for the right job. These do not provide a single solution to manual handling, but can reduce risk where required.

