

Surface Condensation Reducing Slip Resistance

What is the situation?

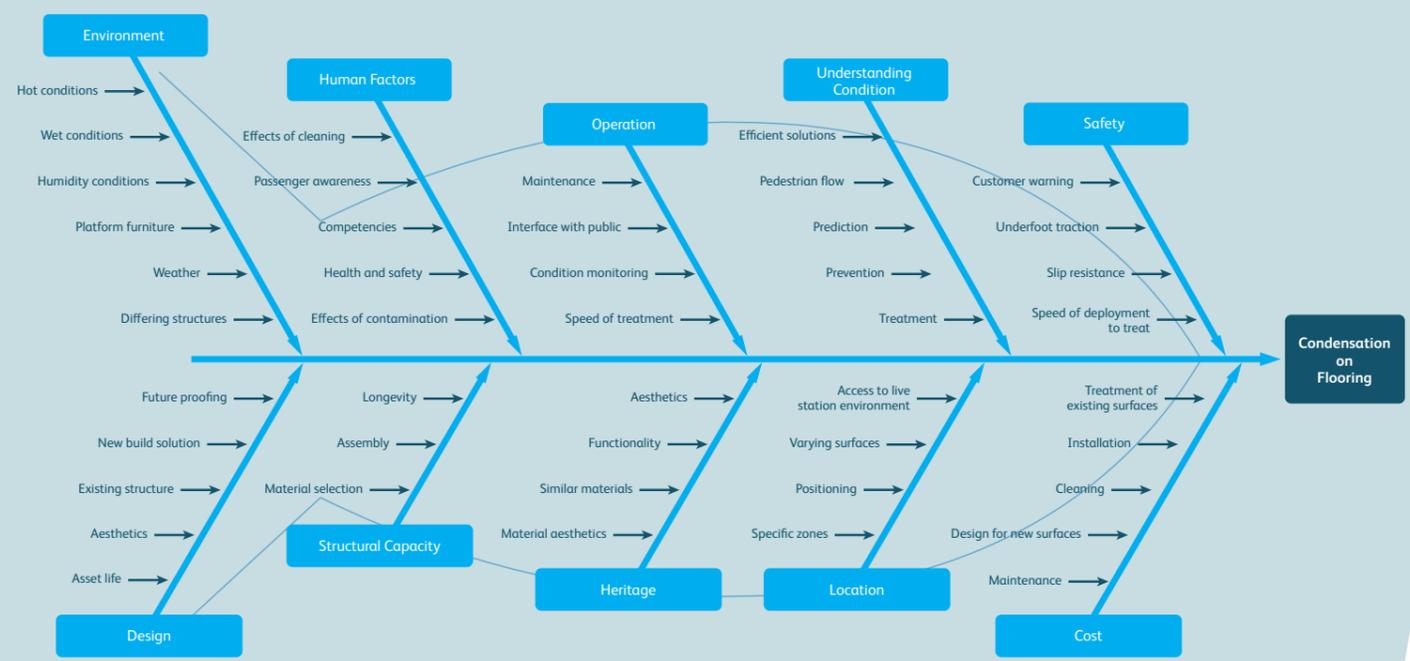
Network Rail directly manage 21 stations – including Birmingham New Street, Manchester Piccadilly, Edinburgh Waverley, Glasgow Central, Leeds, Bristol Temple Meads and 10 in London. These stations typically have a concourse area and platforms with an overlay of terrazzo, paving or asphalt.

Specific atmospheric conditions will cause these surfaces to “sweat” as moisture within the air condenses as the dew point is reached, which in turn reduces the slip resistance of the flooring increasing the risk of slip related accidents. This can also affect elevated structures such as footbridges and mezzanine floors.



fig1. fig2. fig3, fig4.

Analysis of causes



The fishbone (or equivalent diagram) should convey the root causes of the challenge. The use of the RAG process should draw attention to the Top Causes.

Priority problems

Specific priority problems	Related goal	Benefit
a. Prediction	<ul style="list-style-type: none"> Provide automated early warning when dew point is likely to be reached so facility operators can take appropriate action and deploy resources. 	<ul style="list-style-type: none"> Timely deployment of resources & counter measures to reduce risks.
b. Treatment	<ul style="list-style-type: none"> Coatings that can be applied to a range of surfaces that limit or prevent change of the slip resistance under wet conditions. 	<ul style="list-style-type: none"> Reduction of slip risk.
c. Prevention	<ul style="list-style-type: none"> Design solutions to prevent condensation issues to new build structures occurring. 	<ul style="list-style-type: none"> Removal of slip risk.

Scope

The scope of this challenge statement is to investigate methods of prediction, treatment and prevention of condensation on floors at our Managed Stations.

- a. Prediction;** To understand route causes and through monitoring predict when the dew point is likely to be reached and condensation occur.
- b. Treatment;** Investigate treatments that can be applied to existing structures to prevent or limit the effects of condensation, these may be active or passive in nature. Where this is impractical look at systems could be quickly deployed to treat areas effected to mitigate the risk of slips, trips and falls.
- c. Prevention;** Investigate materials and systems that could be incorporated into new designs to prevent occurrence.

Specific research needs

To address these challenges it is expected that R&D actions will need to address the following aspects:

- To understanding the root cause of condensation on a variety of flooring surfaces in similar open spaces, and methods in use to treat these. The design of new structures to eliminate the risk of condensation. Treatment to existing surfaces or mechanical methods to reduce the effects in an operational station.