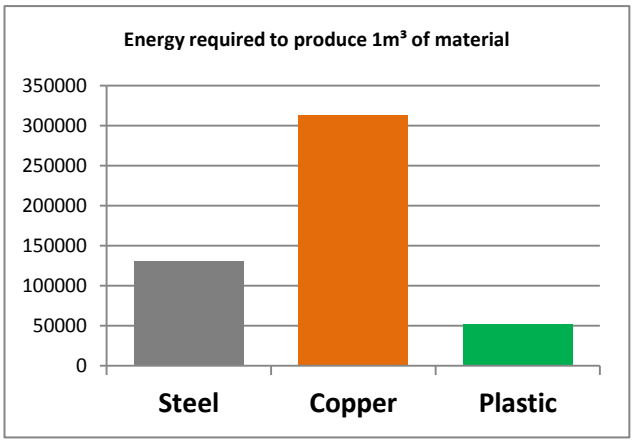
ENVIRONMENTAL FACTORS TO CONSIDER WHEN DECIDING ON A PIPING SYSTEM

An aspect demanding increased attention today is the environmental impact of products used in the construction industry. This is a very intensely debated and widely misunderstood topic, especially when it comes to plastic piping systems. Traditional theory has it that anything plastic is bad for the environment. The perception is encouraged with every soft drink bottle or shopping bag discarded by the roadside, or clogging up drains somewhere. Whilst littering and pollution are very definitely environmental issues, the use of plastics in preference to traditional materials for piping is however actually better for the environment!

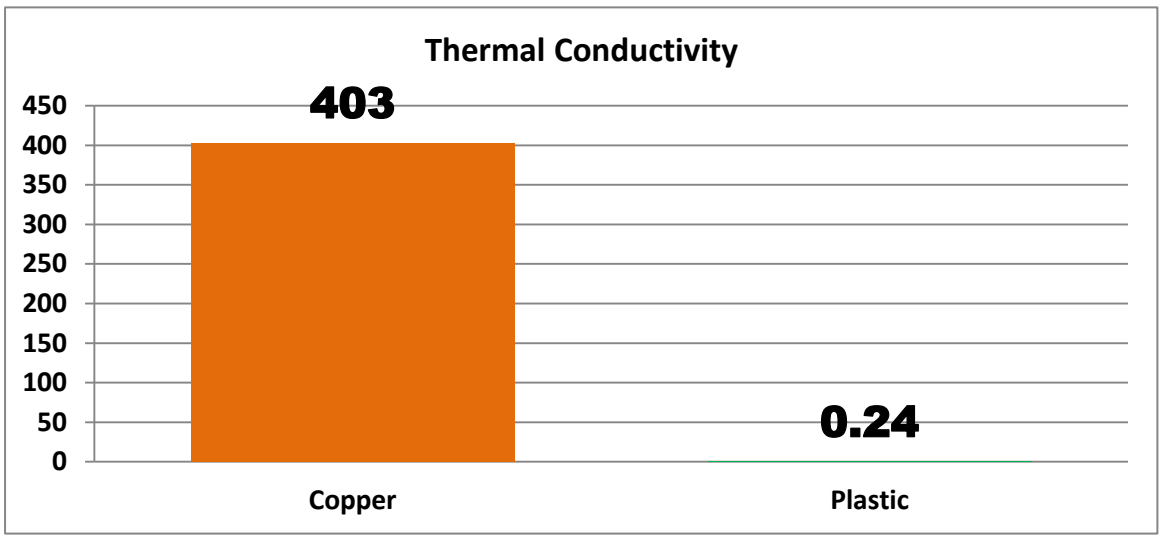
Production of materials

The production of plastics has been refined to a very efficient process. For example, the energy required to produce a cubic metre of plastic from raw materials (average of Polyethylene, Polypropylene and Polybutylene) averages out at 52,000 MJ, compared with 130,000 MJ for steel, 313,000 MJ for copper. To convert this material into the final product also demands less energy with plastic typically being moulded/extruded at less than 300°C compared to copper at 1300°C. With energy costs increasing, this comparison is likely to become even more extreme.



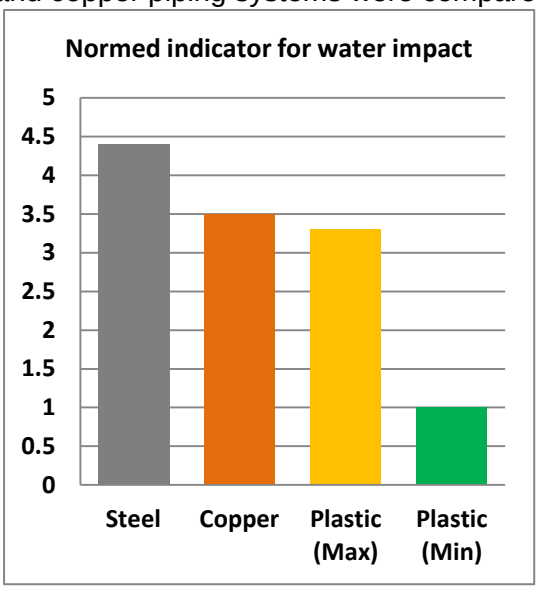
Heat loss

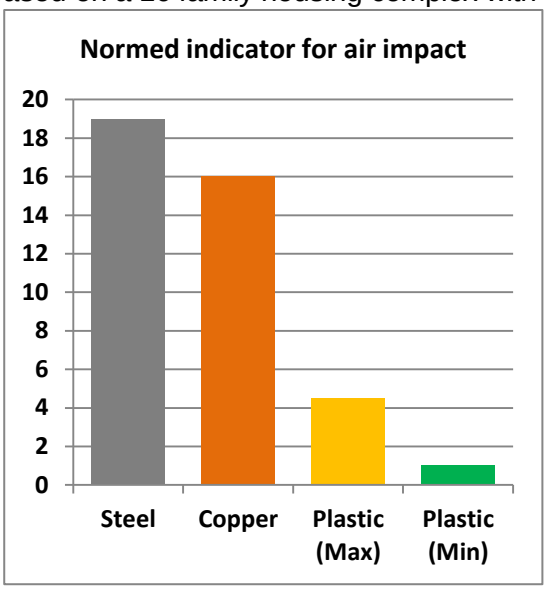
A more commonly understood issue is heat loss. This occurs when the heat inside a pipe escapes through the material to the surrounding environment. Practically this can be noticed when you turn on your hot tap, and it takes a while for the hot water to come through the pipes. Some of this is caused by cool water standing in the pipe, but some is also caused by energy being wasted in heating up the pipe before releasing hot water through your tap. The important measure here is thermal conductivity, i.e. how easy is it for heat to escape through the pipe material. A comparison between copper and an average of Polybutylene and PEX for example cannot easily be shown on a graph, the heat loss from the plastic pipe being less than 1/1000th that of copper.



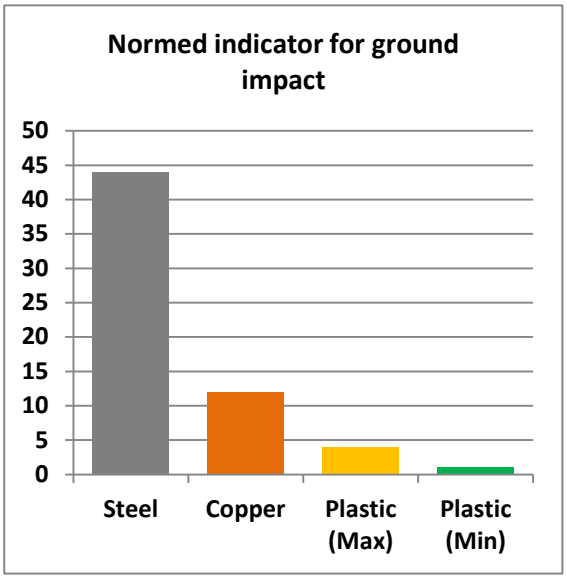
Emissions

In a recent study conducted by Professor Kaüfer at the University of Berlin using the VENOB method (comparative standardising evaluation), the emissions of plastics, steel and copper piping systems were compared, based on a 16 family housing complex with





central hot and cold water distribution at 4 bar pressure as its basis. The study assessed the energy consumption related to air, water and soil emissions at every stage of the production and installation route for the piping systems of various materials. It concluded in every instance that plastic systems had less environmental impact than the metallic alternatives, whilst needing less energy to produce the system in the first place.



Final word

As can be seen from the evidence above, there is much evidence to show that Plastic Pipe systems are far more environmentally friendly than their traditional metal counterparts. New technology also allows the recycling of these engineering polymers into lower classes of plastic pipe, so the re-use of piping material is also no longer a valid argument.

Combine these environmental advantages with cost, productivity and performance benefits and the case for using polymer piping systems for hot and cold water applications has never been stronger.