

# CPVC VS STEEL COST-SAVING REPORT



**BlazeMaster**<sup>®</sup>  
FIRE PROTECTION SYSTEMS



# **FOREWORD**

# **WILL ROBINSON**

With fire protection firmly within the public consciousness, our industry is now having to adapt to rapid changes.

The BlazeMaster® team is proud to rise to these challenges, working closely with manufacturers, authorities and end-users to supply the most specified non-metallic fire sprinkler system in the world. Retrofits and new installations will secure the confidence of the public and protect our lives and properties, while still helping organisations to grow and be successful.

We are now seeing the true value of CPVC as a tested, trusted and viable alternative to traditional steel pipe for sprinkler systems. From easy installation down to lasting reliability, BlazeMaster CPVC pipes and fittings have enabled installers to meet (even exceed) estimated project deadlines, while giving confidence to specifiers who are looking for LPCB approved, dependable fire protection.

With these factors in mind, our team has pulled together this cost-saving report to reinforce how cost-effective and time-efficient a BlazeMaster CPVC system is to install and maintain. The report will also present key case studies from industry specialists who have saved time and money by choosing this alternative fire sprinkler system.

We hope you will enjoy reading through the report and learning about the cost-saving benefits of BlazeMaster CPVC Fire Protection Systems.

**WILL ROBINSON**

Market Development Manager - UK and Europe

# BlazeMaster<sup>®</sup>

## FIRE PROTECTION SYSTEMS

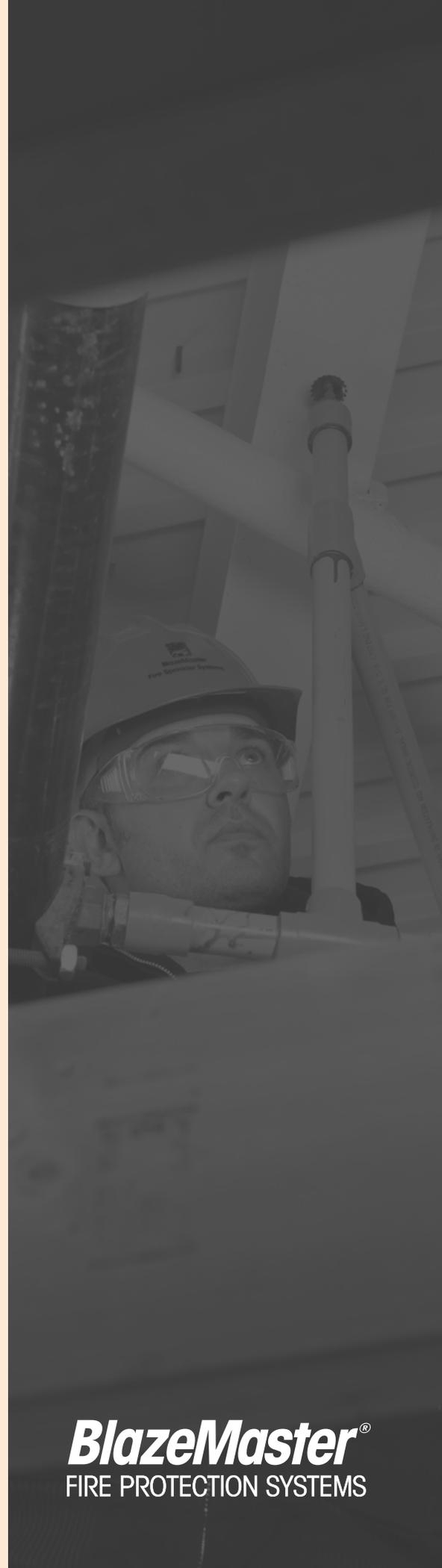
From Lubrizol, the pioneers who commercialised CPVC piping nearly 60 years ago, BlazeMaster Fire Protection Systems continues to set the industry standard.

We understand that implementing life-saving fire safety takes time and can be costly. We also know the importance of keeping health and safety a top priority for your business. That's why CPVC piping systems offer a durable and easy to install solution in comparison to steel, which can also lower your maintenance costs in the long-term.

Depending on the building structure and the amount used, we estimate up to 30% in cost savings when installing a BlazeMaster Fire Sprinkler System instead of a traditional all steel solution.

This cost-saving report features inside stories of how Blazemaster pipes and fittings led to lower costs during installation, as well as time-savings. These case studies include stories from high-rise tower blocks, schools, universities and hospitals that have all reduced costs by delivering:

- Quicker installation times
- Material that is more adaptable to change
- Reduced labour and equipment costs
- Long-term maintenance savings



**BlazeMaster<sup>®</sup>**  
FIRE PROTECTION SYSTEMS

# SAVE ON INSTALLATION TIME

**Need a quick turnaround time for a retrofit project or initial installation? BlazeMaster CPVC is the perfect solution.**

Of course, time-savings vary based on the size and nature of the project, but our experience has seen shorter installation time for BlazeMaster CPVC piping installations in comparison to steel.

**The BAFSA report Safer High-Rise Living**, where BlazeMaster CPVC piping was the material of choice for Sheffield's Callow Mount, a 13 storey, 1960s tower block, provides evidence that sprinklers can be practically and economically retrofitted into high-rises.

## **The report demonstrates that:**

- Installations can be successfully undertaken on a 'fast track basis', as the installation time taken to fit BlazeMaster CPVC systems equated to approximately one day per flat.
- The £1,173 cost of installation per flat compares very favourably with other fire protection measures - and is less than originally estimated.
- Retrofitting sprinklers as part of a major refurbishment project would incur only a small proportion of the overall costs.

## **FACT**

In 2014, Wales became the first country in Europe to require automatic fire sprinkler systems in all new and converted residential properties. BlazeMaster CPVC piping is helping housing developers in Wales **meet the domestic fire safety regulations.**



# BlazeMaster®

FIRE PROTECTION SYSTEMS  
PURCHASE RECEIPT

The Callow Mount retrofit fire sprinkler project summary of total costs (covering 47 flats).

Components:  
**£19,055**

Labour:  
**£26,890**

Establishment:  
**£9,189**

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**TOTAL: £55,134**

An average of just over £1,170 per flat

## CASE STUDY

After the successful findings of the Callow Mount project, Chief Fire and Rescue Advisor Sir Ken Knight told delegates on the launch of the BAFSA report: “It is really encouraging to see the sector rising to the challenge to show retrofitting sprinklers isn’t as costly as previously thought.”

On completion of the retrofit, Sheffield Homes Health and Safety Manager Gary Lund also said: “The feedback from the residents has been absolutely remarkable. The time it has taken to do the full installation in all 47 flats has been incredible. There hasn’t been any mess and the workers have been clean and tidy.”



# CPVC: READY FOR ALL CIRCUMSTANCES

**With all projects, it's possible that you will face difficulties and alterations somewhere down the line.**

That means you need a solution that will save you time and resources when there are installation delays.

BlazeMaster CPVC piping will save significant costs in comparison to steel if there are any changes in the field. For example if installers run into conflict or need to make notable adjustments they can do so on-site by cutting BlazeMaster CPVC piping to the exact measurement needed.

Steel systems require you to pull down the pipe and rework the configuration on the ground. Fabrication is also usually completed off-site.

While still considered a durable and rigid material CPVC is flexible. It can be installed in areas nearly impossible for steel piping by simply threading through existing ceilings and tight spaces.

## FACT

BlazeMaster pipes and fittings have a smoother inside diameter than a steel system. This means that in most installations, when conducting the hydraulic calculations, you are able to use smaller pipe. [Watch our explainer video to learn more.](#)

## CASE STUDY

When a large school in Hampshire decided to rebuild and expand, fire safety officials wanted the most secure and cost-effective solution possible for fire protection.

The job looked intimidating to say the least, with several multi-storey buildings and 913 sprinkler heads. BlazeMaster Fire Protection Systems allowed installers to stay on budget and meet their deadlines.

“We believe it’s the easiest medium to work with and it allows a flexibility to the design,” said Colin Taylor, head of the Oxfordshire office for Domestic Sprinklers, who led the installation. “The amount of changes that were forced upon us during the installation would have resulted in very high additional costs if BlazeMaster Piping Systems hadn’t been used.”

# 5 STEP GUIDE

TO INSTALL BLAZEMASTER CPVC PIPING

## STEP 1:

Cut the piping squarely using ratchet cutters, a power saw, a wheel cutter or a fine-tooth saw.

## STEP 2:

Remove burrs and bevel the outside of the pipe.

## STEP 3:

Test fit the pipe.

## STEP 4:

Apply a thick coat of solvent cement around the outside of the pipe and inside of the fitting socket.

## STEP 5:

Insert the pipe into the fitting while rotating to ensure even distribution of cement. Hold for 30 seconds.

**WATCH THE  
WALKTHROUGH  
VIDEO**



# SAVE ON LABOUR AND EQUIPMENT COSTS

Installing BlazeMaster Fire Protection Systems is a one-man job, meaning no need for surplus workers or equipment, saving you costs on resources.

Installers have benefitted from the lightweight material of CPVC, which does not require special rigging equipment to transport it through the construction site. Engineers can be assigned to their own areas and trusted to work independently, using hand tools to complete a project - with no electricity required in the installation process.

Unlike steel, CPVC does not require cutting or welding equipment, nor any noisy threading machines. Choosing CPVC piping will not only save money on equipment rental, but also minimise disruptions. This makes CPVC a perfect fire sprinkler solution for residential tower blocks, schools and care homes.

## FACT

BlazeMaster brand offers training courses to aid with installation ensuring installers are prepared to see their projects through to completion. [Find out more on our blog.](#)



# NOTRE DAME INSTALLATION

## CASE STUDY

With student protection at the forefront of their thinking, Notre Dame University in Indiana, USA, wanted to retrofit an entire residence hall space of over 220,000 square metres within 7 months. In addition to time, cost was a major issue for school officials. As a private institution Notre Dame wasn't relying on government subsidies.

“When the University officials mapped out their time schedule over the summer and winter breaks so that we could have complete access to the buildings, we realised immediately that there was no way to do the project in steel pipe – it just couldn't be done. It was possible using BlazeMaster Fire Sprinkler Systems,” said Mike Lowe, Assistant Vice President and Corporate Purchasing Manager for McDaniel Fire Systems. “The product gave our engineering staff the ability to speed up their function. All we had to do was ship the materials to the site. It was just a matter of getting product to the field crew and turning them loose to get the project done.”

Cost of project with  
BlazeMaster CPVC piping:

**£24.30 per square metre.**

Cost estimates for traditional techniques:

**£32-£41 per square metre.**

Cost savings:

**Between £565,275 and £1.1million  
for the entire installation.**



# A LONG SERVICE LIFE FOR LONG-TERM SAVINGS

**With a natural immunity to scale, corrosion and microbiologically influenced corrosion (MIC) BlazeMaster CPVC piping systems offer a long low-maintenance service life that typically exceed traditional systems.**

According to an **FM Global report** corrosion in steel systems is the 'most significant issue for owners of water-based fire protection systems in terms of both cost and system reliability'. Likewise, MIC is reported to be responsible for 'at least 10% of the corrosion problems of structures.'

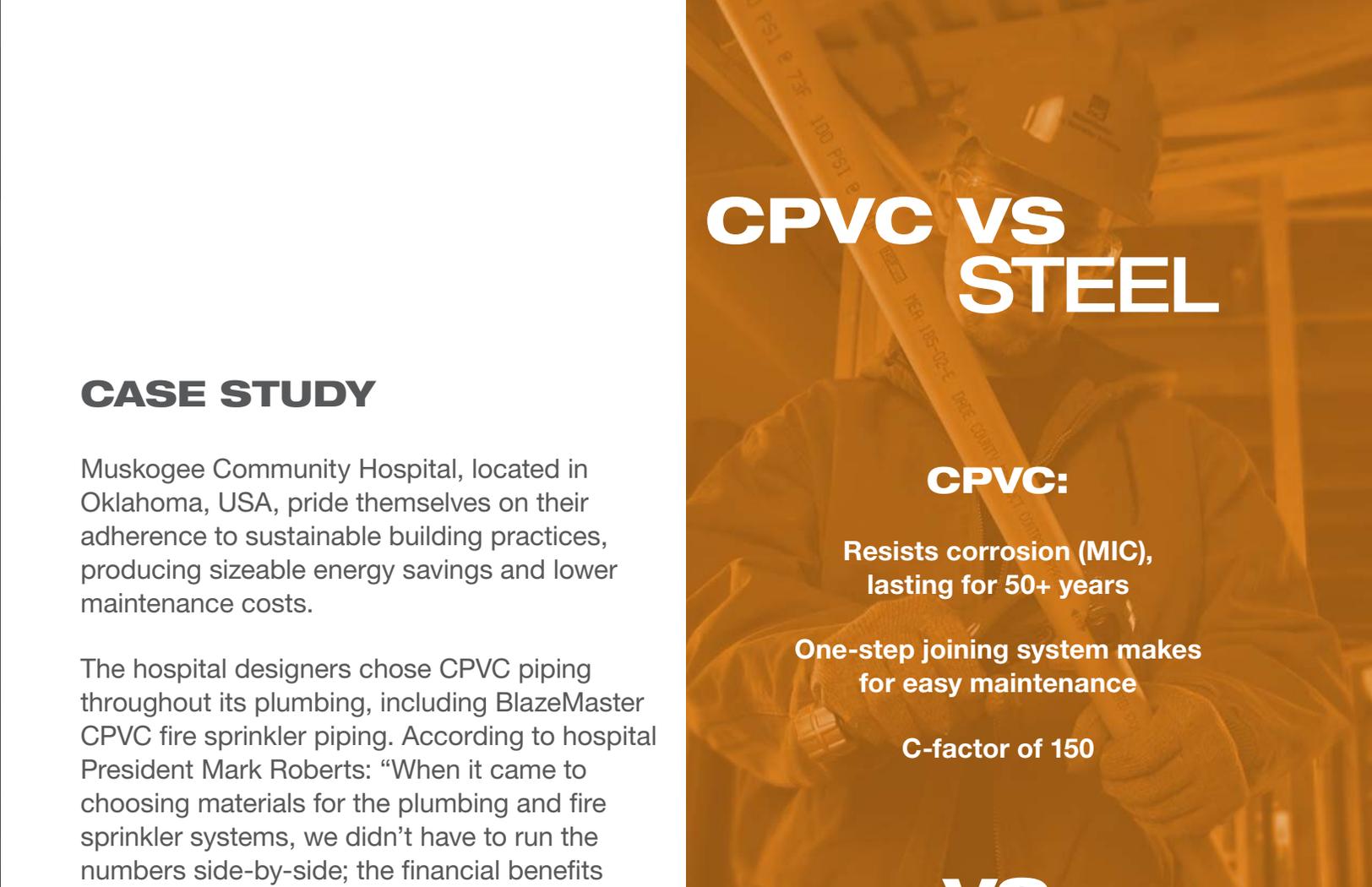
Aside from lower costs associated with system maintenance CPVC piping has a C-factor of 150. Steel piping's C-factor is 120 when new but decreases with time due to scale build-up meaning flow is compromised. As well as improved flow BlazeMaster pipes and fittings have superior hydraulic capabilities. This means smaller pipes are required resulting in cost-efficiencies and simpler repairs.

An article by **Potter Electric Signal** cited research by VdS, a German fire safety firm, which has claimed that 73% of dry steel systems have significant corrosion issues at 12.5 years old and 35% of wet systems have significant corrosion issues after 25 years. However, these damages can occur **'as soon as two years after installation.'**

BlazeMaster Fire Protection Systems remain corrosion free for more than 50 years of design life, offering you superior reliability in the long term.

## FACT

CPVC is a more ecologically sustainable solution, outperforming steel in 12 of 13 environmental impact categories, including renewable energy use and human toxicity.



# CPVC VS STEEL

## CASE STUDY

Muskogee Community Hospital, located in Oklahoma, USA, pride themselves on their adherence to sustainable building practices, producing sizeable energy savings and lower maintenance costs.

The hospital designers chose CPVC piping throughout its plumbing, including BlazeMaster CPVC fire sprinkler piping. According to hospital President Mark Roberts: “When it came to choosing materials for the plumbing and fire sprinkler systems, we didn’t have to run the numbers side-by-side; the financial benefits afforded by using CPVC products were obvious when you considered both the material and labour cost savings.”

Roberts felt strongly that Lubrizol CPVC products had many advantages over traditional systems, notably within the installation process. “The joining process used for CPVC pipe and fittings is highly reliable; we have had no problems with the piping systems that use CPVC products since the systems were installed several years ago.”

### CPVC:

**Resists corrosion (MIC),  
lasting for 50+ years**

**One-step joining system makes  
for easy maintenance**

**C-factor of 150**

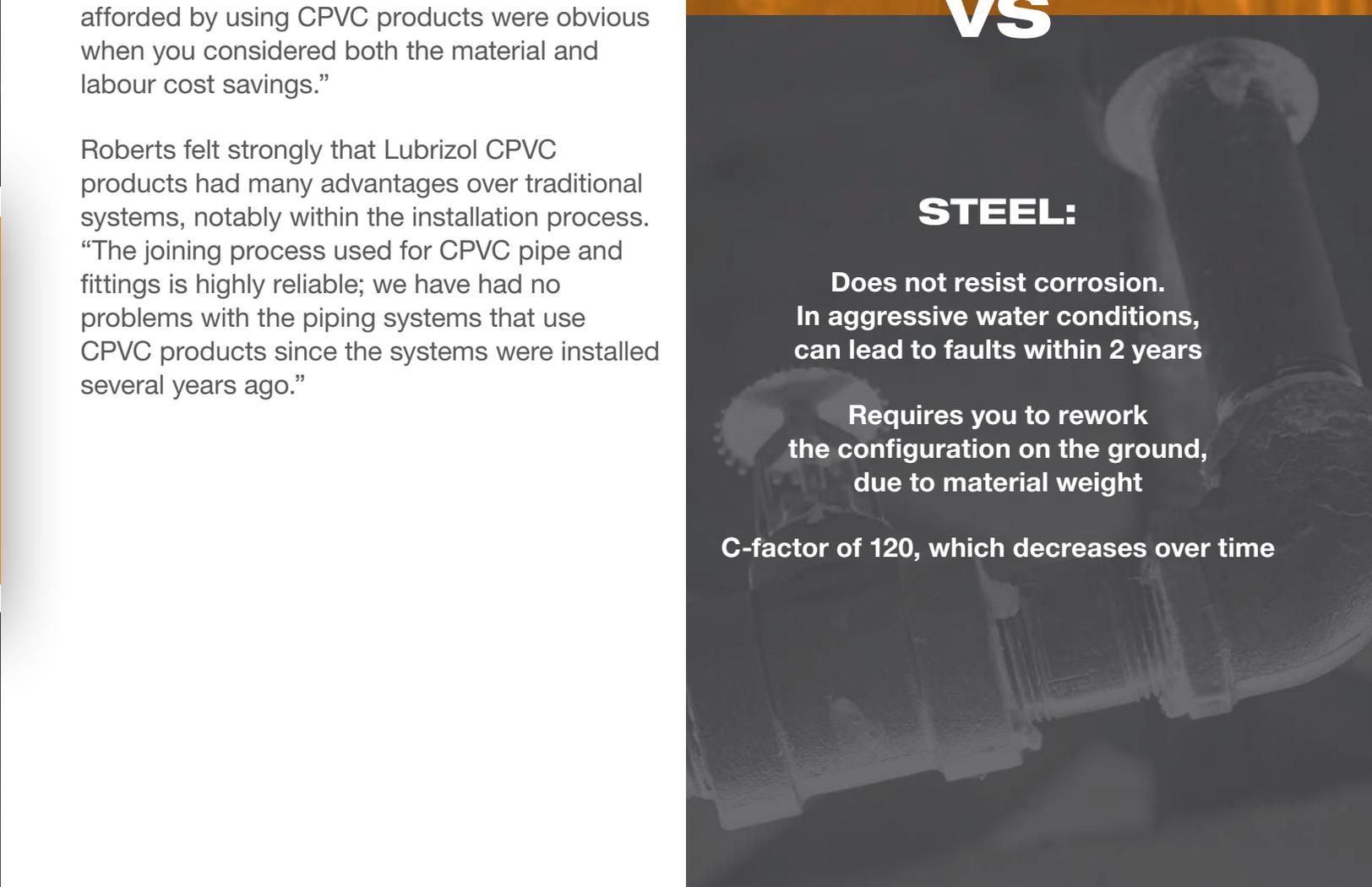
## VS

### STEEL:

**Does not resist corrosion.  
In aggressive water conditions,  
can lead to faults within 2 years**

**Requires you to rework  
the configuration on the ground,  
due to material weight**

**C-factor of 120, which decreases over time**



# UK CERTIFICATES AND APPROVALS

**BlazeMaster Fire Protection Systems** have long been an approved solution in the UK for both retrofits and new builds. We provide protection and cost-savings in hotels, schools, universities, hospitals, care homes and high-rise buildings.

While steel fire protection systems have been the traditional choice for retrofits and residential installations UK certifications held by the BlazeMaster brand prove that our CPVC piping delivers the same, if not heightened, reassurance when compared with steel. This is proven by the brand's achievement in meeting these three strict certifications and approvals for fire safety globally and in the UK.



## UL LISTED

BlazeMaster pipes and fittings are UL listed for use in all light hazard occupancies as defined by NFPA 13. NFPA 13 addresses sprinkler system design approaches, system installation and component options to prevent fire deaths and property loss. This is the industry benchmark for design and installation of automatic fire sprinkler systems, awarded by the National Fire Protection Association.





BS 9251:2005

## **BS 9251**

BS 9251 is the main British Standard covering fire sprinklers in this country. BS 9251 gives guidance for the design, installation, components, commissioning, maintenance and testing of fire protection systems for domestic and residential occupancies.



BS EN  
12845:2004+A2:2009

## **BS EN 12845**

BS EN 12845 covers the classification of hazards, provision of water supplies, components to be used, installation and testing of the system, maintenance and the extension of existing systems. It also identifies construction details of buildings which are the minimum necessary for satisfactory performance of fire protection systems complying with this standard.

**All of these approvals are paramount requirements for any fire protection system in order to protect lives and property.**

# CHOOSE THE RIGHT SYSTEM WITH CONFIDENCE

Whether you're a builder, architect, designer or installer, a BlazeMaster Fire Sprinkler System offers real value for money to solve the needs of your project and provide significant cost-savings over its lifetime.

Consult with our team on your project today and find out more information on:

- Costs and timings
- Technical specifications
- Training workshops for your team
- Any other questions you have in mind

Remember, not all orange pipe is the same - ask for BlazeMaster Fire Sprinkler Systems by name.

Speak to our experts on  
**+44(0)7710 372281**



 **ARRANGE A FREE CALL**

**BlazeMaster**<sup>®</sup>  
FIRE PROTECTION SYSTEMS

Visit [BlazeMaster.eu](https://www.BlazeMaster.eu) or call  
**+44(0)7710 372281** to learn more.

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