

# INSIGHT

The News Magazine From Sapphire



2019  
Q3

Is MMC the key  
to the housing  
crisis? Page 7

Does MMC mean  
bouncy balconies?

Read more on page 12





Editor

Hello I'm Mary, I'd love to hear your ideas for future content, or questions you would like our experts to answer in future issues. You can email me at [mary.mccollum@sapphire.eu.com](mailto:mary.mccollum@sapphire.eu.com)

In this issue of Insight we're tackling two of the most prominent topics in the industry, MMC and fire. With a spate of balcony fires over the summer hitting the headlines potential adjustments to the existing cladding ban are at the forefront of many in the industry's minds.

Modern methods of construction are also in the spotlight as the industry struggles to respond to the Government's housing target of 300,000 homes per year. MMC offers great potential in meeting these demands and is recognised by many key players in construction as an area to explore.

# Editor's Overview

MMC is recognised by many key players in the industry as an area to explore

In this issue we will discuss the latest news in fire and MMC and our expert Tristan Parsons will answer your questions on how to get the best performance from MMC balconies.

*Mary McCollum*  
Mary McCollum



Event Coordinator

Hello I'm Regan, we run regular industry roundtable events and CPD's. To join an event or to book a balcony design, balcony fires or drainage CPD, email me at [regan.cook@sapphire.eu.com](mailto:regan.cook@sapphire.eu.com)

*Regan Cook*  
Regan Cook

## Read more...

Read more about The Gherkin event roundtable on page 16.

## Events



### Hindsight

Gherkin Fire Roundtable & CPD Event  
4th September

Contact me to book a CPD, Fire CPD or Design Meeting today!



### Foresight

Manchester MMC & Fire Roundtable & CPDs  
23rd October 2019

The morning roundtable will be focused on how MMC are transforming the industry and reducing fire risks on high-rise residential buildings, particularly focused on the Manchester area. The afternoon will include a number of CPD presentations on MMC and fire from a variety of speakers. The event will be free to attend.

Reading Roundtable  
December 2019

We will be hosting another roundtable in Reading to discuss tackling balcony fires on high-rise residential buildings and the combustible cladding ban. This event will be by invitation only but if you're local and interested in attending, contact us now.

# Industry Insight

**83%**  
 of **Quantity Surveyors** say they are extremely **open** to **working** with **MMC**



## Technical Advice

Hello I'm Nick, I keep up to date with latest industry changes and regulations, to guide clients with technical design at early design stages of projects, email me at [nick.haughton@sapphire.eu.com](mailto:nick.haughton@sapphire.eu.com)

*Nick Haughton*

Nick Haughton

**300k**  
 The **Government's** target for **new** **homes** built **per year** by the mid **2020's**

"MMC is the way the industry is going, and you can see why. The quality is higher, costs are lower and it is generally just a better way of working"

Sapphire Industry Research Respondent

Contact us for the full report.

**74%**  
 of **Architects** say they are extremely **open** to **working** with **MMC**

Over  
**1/3**

of **survey respondents** said being over budget was a **major concern**

## Is MMC just a buzzword?

Modern methods of construction or MMC is an umbrella term for a range of modern construction techniques. Most commonly MMC is used to refer to offsite construction of either full modules or large components.

Traditionally balconies rely heavily on onsite finishing and install work, from concrete balconies cast entirely onsite to steel framed bolt-on balconies which often claim the MMC title while relying heavily on onsite labour.

Inaccurate use of the term MMC causes confusion and makes articulating the benefits of modular Cassette® balconies more difficult. Modern methods of construction hold a great deal of potential in remedying industry-wide challenges and meeting the demands of the housing crisis.

MMC is not simply a buzzword but a great opportunity for the industry to evolve to meet the construction needs of tomorrow.

## Berkeley Bike Ride



We were happy to support Berkeley's Steve Ridout as he took part in an epic 250-mile charity bike ride in aid of the African Children's Fund's Kenyan Schools Program. Donations will help 6 schools which are located near Thika, just outside of Nairobi. An astounding almost £4K was raised. Well done Steve!

## Major Incident Response Training



Six members of Sapphire staff assisted RRT in supporting Berkshire, Oxfordshire and Buckinghamshire emergency services joint training exercise on responding to a staged major incident. The training took place on the 12th September and RRT spent the day providing approximately 800 free meals and refreshments. Well done team!

## Wates Diamond Challenge

### THE RIVER THAMES TEAM CANOE RACE CHALLENGE



We're happy to be supporting Wates team members in their participation in The Diamond Challenge. The team will be rowing a challenging 16 miles along the Thames! Funds raised will go to support The Conservation Volunteers who support vulnerable and disadvantaged people by helping them connect to their communities and the environment.

## Countryside 5-a-side



Countryside is hosting a charity 5-a-side football tournament in aid of Bliss who provide care for sick or premature babies and work to ensure they have the best possible support and quality of life. We're happy to be contributing to this worthy cause and great day of competitive fun at Wembley Stadium.

# Why Laminate Glass Became the Safe Choice for Balustrades.

Balcony glass has long been identified as a key architectural feature, as long as it's safe. Traditionally the use of Georgian wired glass offered this perceived safety and as technology in glass has improved so have the techniques for safety glass. Originally BS 6180 (now 20 years old) guidance focused around the use of framed balustrades with a glass infill panel as was typical. Such infill panels were usually constructed using a 10mm monolithic temper toughened glass.

In 2012 there was a tragic accident in Sheffield where a young child fell through a gap left by a smashed panel of monolithic glass in the roof terrace balustrade. Following the incident, the more forward-thinking companies in the industry started to move completely away from using monolithic glass and instead use toughened laminate glass.

As more companies started embracing laminate glass solutions and with more investment in lamination technology, the price started to fall. By 2010 laminate became cheaper than monolithic making it a 'no-brainer' given the safety benefits laminated glass offers, primarily:

1. If a monolithic glass panel smashes, shards could fall from the balcony down to the ground.

With a laminate glass, the laminate means the shards are still held to the adjacent panel of glass, as looked for under the CDM requirements.

2. Laminate glass ensures that if a panel does smash, the integrity of the barrier is maintained rather than leaving a gap. This benefit was realised by the BSI in 2011 who revised BS 6180 to allow using laminated toughened glass without a structural handrail.

## Is laminate glass a safety benefit or is it banned under the combustible cladding ban?

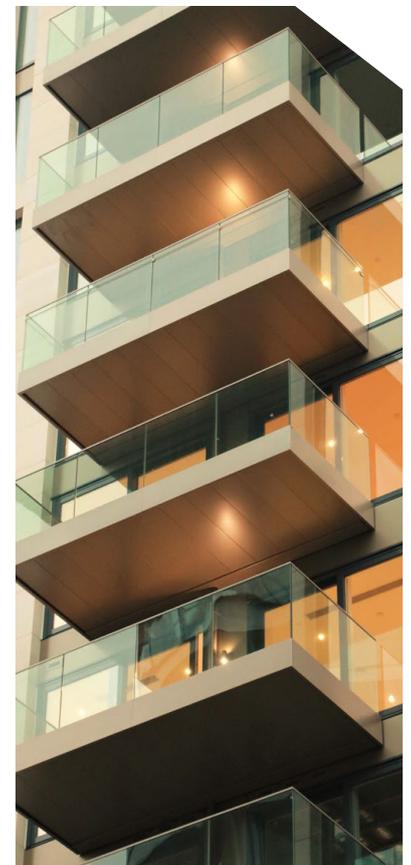
At present, it is allowed in a window scenario given that it is listed as an exemption. However, laminates used as a balustrade are not on the exemption list and are therefore assumed to be banned.

The MHCLG mandate is to improve the safety of buildings, however it seems that the fire ban has become a one-eyed approach. Products like laminated glass are banned for 'safety' reasons but as a result less-safe monolithic glass balustrades are being specified, increasing the likelihood of another tragedy.

The industry is unfortunately being pushed to less safe options, under the banner of 'safety'. As illogic as it seems at present a set of French doors on a high-rise building can use laminated glass, whilst the Juliet balcony just 40mm in front of the doors, are banned despite being the essential guarding.

Answer the Sapphire questionnaire to add your opinion to the lobbying of the MHCLG.

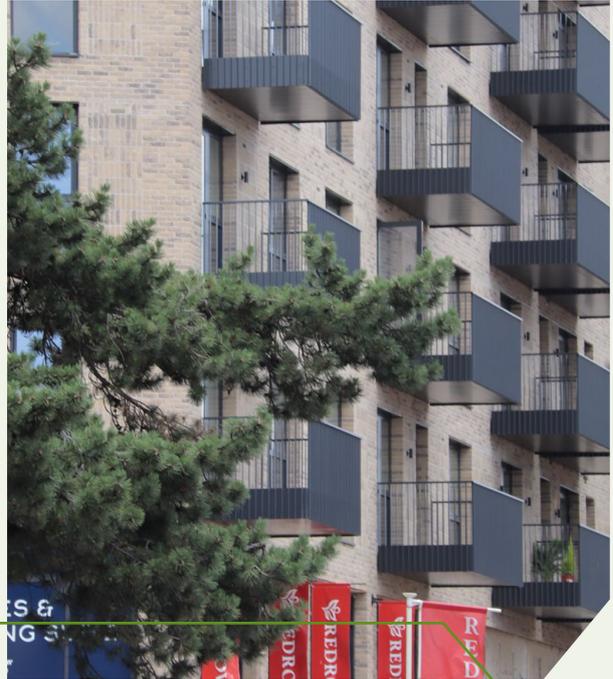
**Credit to: J. Allen  
AITCo Consulting**





## Pontoon Dock (Bouygues)

Balconies surrounded by greenery at Pontoon Dock. *Image credit: S. Moza, McKean Developments*



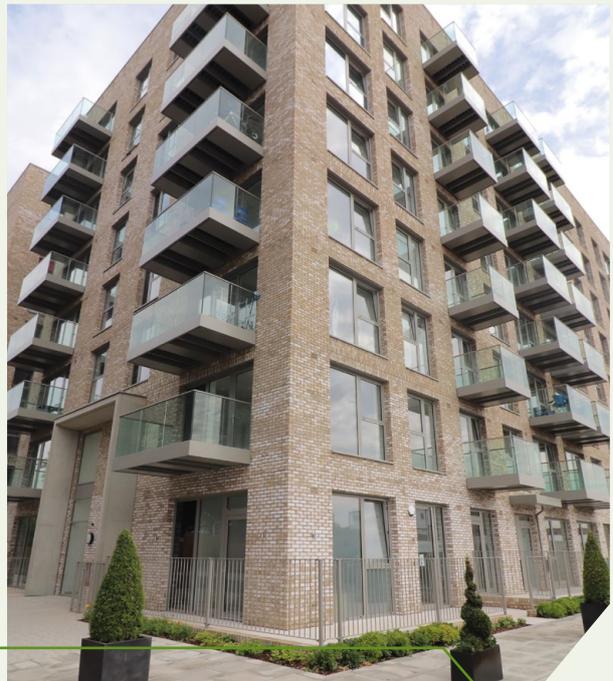
## Malgavita (Redrow)

Recently installed balconies at Malgavita, Merrick Road.



## Acton Gardens (Countryside)

Two-piece arms await Glide-On™ balconies at Acton Gardens.



## Upton Park (Barratt)

Newly installed balconies with unique soffits at Upton Park.

# Slow Uptake of MMC Threatens Government Housing Targets

**The Government's Housing Committee warns that the housing target of 300,000 homes per year by the mid-2020s is at risk due to the slow uptake of MMC. The committee recommends a push to promote modern methods of construction in a bid to meet the demands of the housing crisis and to speed up the UK construction industry's output of residential buildings.**

The first step, according to the Housing Committee, is to raise confidence among lenders, insurers and home buyers by demonstrating the durability and reliability of MMC homes, collecting fresh data and establishing a single set of standards.

The Government will also need to act quickly to ensure the industry can meet these demands by offering easy access to finance for smaller builders, training for the workforce and a central digital database of records.

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**"If the Government is to have any chance of meeting its target...it cannot simply rely on traditional methods of construction."**

Clive Betts - Committee Chair

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# Recent Balcony Fires Put Government Regulations in the Spotlight

**A recent spate of fires in residential buildings, several originating on balconies, have led to calls for further review of the Government's fire safety regulations. Since the tragic Grenfell Tower fire, fire safety regulations have been under increasing scrutiny, with subsequent residential fires making headlines.**

While a cloud of uncertainty remains over the details of the existing combustible cladding ban, further calls are being made to extend the regulations below the 18M threshold. RIBA's expert advisory group on fire safety chair, Jane Duncan, said recent fires show the government's ban "may need to be extended" and called for sprinklers to

be mandatory in all new and converted residential buildings.

This comes days after the Government's announcement of a consultation into reducing the mandated fitting of sprinklers into buildings from the current 30M to 18M. A new Protection Board is also to be established to carry out tailored

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**Recent fires show the government's ban "may need to be extended"**

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building inspections and provide expert advice in a bid to reassure residents in high-risk residential blocks.



# STEELBUILD

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*John Connell*  
*Wates*

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*Stuart Bennett*  
*Hollybrook*

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*Job: Wates NW06*  
*Steve Harris*  
*OCL Facades*

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# Major Housing Developers Embrace MMC

**Key players in the UK construction industry are embracing the benefits of MMC with several announcements this year.**



Barratts, Britain's biggest house builder, announced it is aiming to deliver 20% of new homes through modern methods by the end of 2020. With a focus on off-site production and standardisation Barratts hope to drive down building costs and support their growth aims.

Wates are set to deliver the first modular council homes in partnership with Cardiff Council. The development is set to deliver

600 affordable homes around the city and is the first of its kind in Cardiff.

Berkeley Group are also embracing MMC with Berkeley Modular's manufacturing facility set to become operational next year. The facility will produce up to 1000 volumetric modular homes per year fully complete with plumbing, electrics and internal fittings.

# Scottish Fire Regulations Set to Tighten

**The Scottish Government has announced changes to building standards intended to strengthen fire safety standards in high-rise residential buildings.**

The regulations, set to come into effect on 1st October will bring the threshold of the combustible cladding ban down from 18M and above, to 11M. Additional escape stairs and storey identification

signs will also be required to aid fire and rescue services navigate buildings in the event of an evacuation.

These changes will not only change the course of the construction industry in Scotland, but add to the mounting pressure on the Government to expand upon the combustible cladding ban for the rest of the UK.



# London Fire Brigade: Stop Balcony BBQs

**In a recent article the London Fire Brigade is urging residents to stay safe during the summer by avoiding barbecues on balconies after several fires across the country.**

They warn that BBQs should never be used on balconies, not only because of the clear fire

risk but also due to the carbon monoxide fumes released for several hours after use.

While we cannot control end user activities on balconies, warnings like these are essential to educate the public on balcony safety, as well as designing balconies to minimise the risk of fire spread.



# Balcony Rigidity Wows at Blackfriars

Balconies at Local Blackfriars in Salford, Manchester are among the most rigid achieved to date, eclipsing the British standard for deflection of L/180.

Heritage and modern architecture blend beautifully at Local Blackfriars as the Grade II-listed former pub has been transformed into a gateway entrance to the gated community. In a nod to the local history the former Black Friar pub is flanked by two striking modern towers which provide 380 apartments to the area.

Concrete wall panels were chosen for this project which the

contractor wanted to connect balcony bracket to, in lieu of the slab. To meet this challenge we designed a bespoke bracket that maintained the thermal break inside the cavity, while also meeting our Rigid.Right. brand promise.

The specialised brackets were produced and cast-in at the concrete wall panel manufacturer's factory in Dublin before being shipped back to Manchester for install.

Our brand promise guarantees all our balconies will be Rigid.Right. first time.

This means they must meet a minimum of L/360 deflection which is twice as rigid as the British standard. At Local Blackfriars we achieved an outstanding 0-1mm deflection when tested with a 200Kg weight making these some of the most rigid balconies installed to date.

Not only did we manage an extremely high rigidity result,



we worked harmoniously with other trades to ensure the smoothness of the project programme. All 290 Glide-on™ Cassette® balconies were prefinished offsite at our production facility in Staffordshire ahead of the agreed delivery date and securely stored ready to be called to site.

The concrete wall panels required the use of the crane Monday-Friday, so we scheduled delivery and install of our Glide-On™ balconies on weekends. This way crane costs could be minimised, the project could progress quickly, and synergy could be reached between the different trades active on the project.

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The simplicity of the Glide-On™ innovation enabled teams to achieve 30 per day meaning lost program time caused by other trades could be caught up.

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The result, exceptionally rigid balconies wowed at Local Blackfriars and provided residents with essential private outdoor space for a bustling central Manchester lifestyle.

Residents benefit from communal facilities including a reception,

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At Local Blackfriars we achieved an outstanding 0mm deflection when tested with a 200Kg weight making these some of the most rigid balconies installed to date.

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laundrette, cinema room, fitness studio, bike storage and car parking space. This development offers luxury living with their extensive indoor facilities as well as access to a relaxing 'urban orchard' between the towers.

Situated just two-minutes' walk from Manchester's vibrant shopping district, the lively northern quarter and the buzzing nightlife of Deansgate and Spinningfields. The development was designed by 5Plus Architects and delivered by Salboy. ■

## Key Stats

Architect: **5Plus Architects**  
Developer: **Salboy**  
Contractor: **Domis**

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Balconies: **290 Cassettes®**  
Storeys: **15**  
Location: **Salford, Manchester**

# Ask The Expert

Managing Director Tristan Parsons discusses designing and manufacturing balconies using MMC processes. He tackles common challenges such as bouncy balconies and provides recommendations for achieving the best structural performance and programme efficiency.



## Tristan Parsons

Tristan has been with Sapphire since 1999 and as our Managing Director is at the forefront of business leadership and growth. His vast knowledge of MMC and balcony design comes as a result of his extensive experience acquired over the past 20 years.



## Q: What is the biggest challenge with putting balconies on buildings using MMC?

A: The biggest challenge transferring the structural loads into the building. On a traditional RC frame building the large cantilever forces from the balcony are taken by the RC floor slab. On other frames consideration must be taken at the design stage to ensure the load is properly managed.

## Q: Which balcony materials should I consider?

A: 1. Due to its weight concrete is a non-starter.  
2. Aluminium is much lighter than steel so reduces the forces going back into the structure.

## Q: Should balconies be installed in the factory or on site?

A: We recommend installing balconies to the building on site. This avoids double handling, allows larger building modules to be transported, and reduces the lorry movements as balconies can usually be stacked on a trailer.

## Q: Should balconies be installed to the modular unit at ground level or installed afterwards?

**A:** Either is possible and will depend on the requirements of a particular project. Our standard recommendation would be to build the modules first, then install a large batch of balconies in a short space of time. This achieves the most efficiency and ensures there is no risk of interruption in the installation of the façade elements.

## Q: Is there a risk of bouncy balconies and how is this best avoided on MMC schemes?

- A:**
1. Early design engagement – The risk of bouncy balconies is higher than with RC frames. So, it's important to engage early on – Sapphire often get involved in early stage design work for MMC to ensure that the necessary structure is designed in to take the balcony loads. You may also want to consider doing a full-size mock-up.
  2. Ensure structural brief includes deflection study - It is extremely important is to ensure that the structural engineer designs the supporting elements not only to resist the loads (which is relatively easy), but also carefully assesses the deflection that will result from movement within the structure much harder to assess but very important).
  3. Balcony projection – especially with MMC, it works better to keep the balcony projection down where possible (e.g. a 6x1.5m balcony is better than a 4x2m balcony).
  4. Recess the balconies – this depends on the architecture, but where it is possible to recess balconies into the façade, it allows a balcony to be supported on 3 sides rather than cantilevering from one side.
  5. Tie wires – this has a visual impact that needs considering, but diagonal wires/rods do substantially reduce the loads and increase rigidity.

## Q: What are 3 key tips to have in mind?

- A:**
1. Use aluminium balconies – the reduction in weight minimises the challenges faced on MMC schemes.
  2. Engage with a balcony specialist early in the design process to ensure all elements of the design facilitate the best outcomes.
  3. Keep balcony projections down to limit the forces transferred back to the building and reduce balcony deflection.



# Sapphire Beats the Clock at Watford Riverwell



While it's no surprise that time is of the essence on site, the Watford Riverwell project had a particularly tight time scale for delivery and install of balconies. We rose to the challenge keeping the project programme on track thanks to our Rigid.Ready.Right. brand promise.

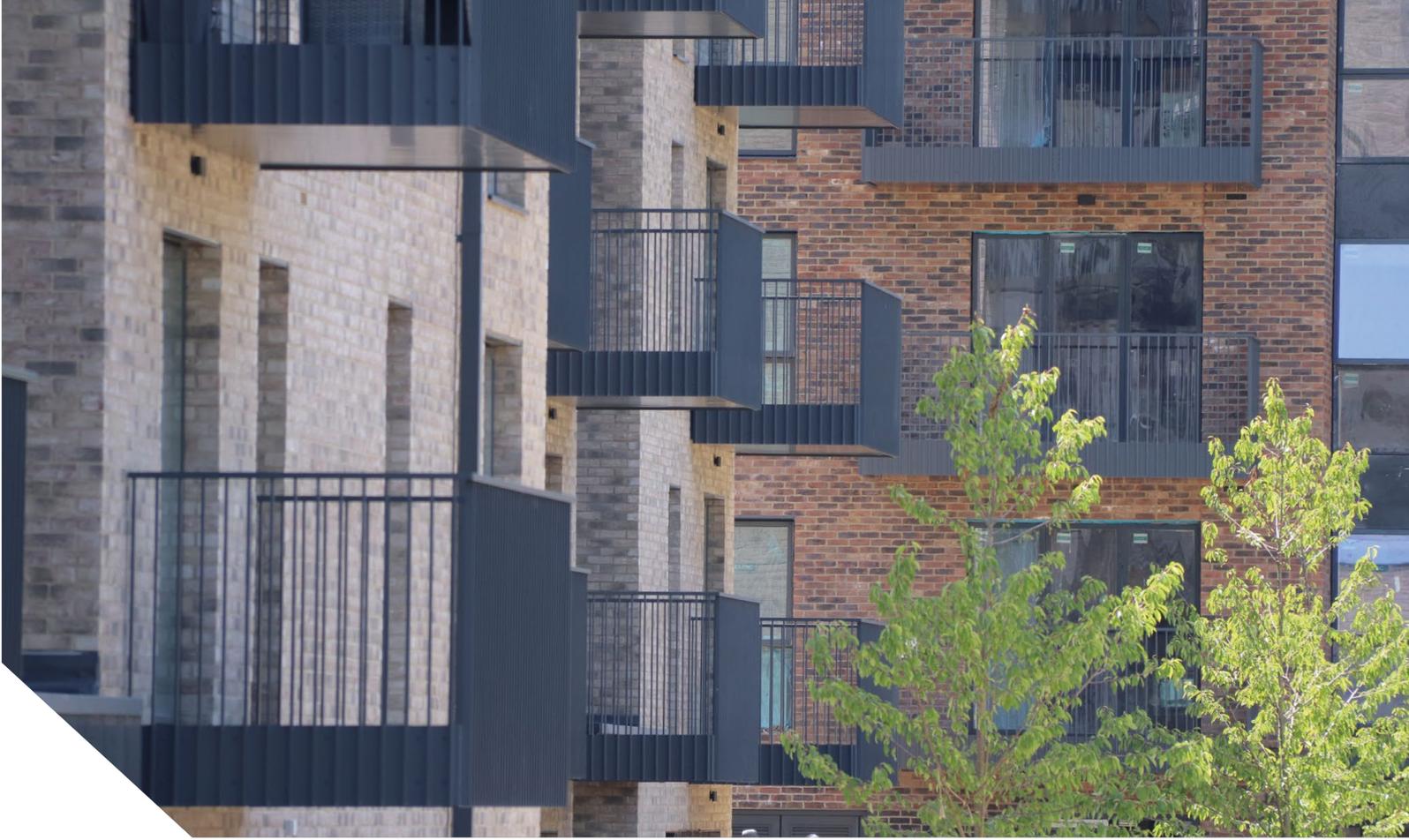
**T**he Watford Riverwell development built in partnership between Kier Property and Watford Borough Council is transforming 70 acres of contaminated brownfield site into a flourishing community. The project boasts 750 residential units, office, leisure and retail space as well as 4.5 acres of green open space.

The development has already elevated the local area as the River Colne and surrounding banks have been cleared, restoring it to its former tranquillity to the benefit of residents. The formerly industrial land is being given a new lease of life by being regenerated into a peaceful family-friendly neighbourhood

including a new primary school and improved public spaces.

We were instructed to supply 84 Glide-On™ Cassette® balconies with vertical bar balustrades for the Woodlands phase of the Watford Riverwell project.

Schoeck anchors were chosen and cast-in but some were unfortunately incorrectly



positioned, presenting a challenge for the Sapphire accredited installers. Delays to the balcony install would have been a significant issue for this project as time constraints were especially tight.

With traditional bolt-on balconies misaligned anchors would cause significant delays. Fortunately, the Glide-On™ system can enable a +/-20mm tolerance so despite the misplacement of the anchors, the balconies were successfully installed.

With consideration for the site programme the balconies were prefinished offsite ahead of the deadline on an efficient and quality-controlled production line at our Winchester facility and safely stored until ready for install.

Once the site was ready balconies were loaded and 'nested' onto pallets to minimise the number of lorries heading to site and improve efficiency of install. Reduced lorries not

only reduce emissions and transport costs, it also ensures minimal traffic onsite keeping the flow of deliveries as smooth as possible.

A further benefit of the Glide-On™ system to the Watford Riverwell scheme was that balconies could be installed in any order required to fit with the work of rest of the trades onsite.

Unlike bolt-on balconies no installer is required to work under a live load and as they are installed from inside the building, there is no need for a ground-up approach. The flexibility this afforded meant time onsite could be organised more efficiently to meet the programme completion deadline.

The Sapphire Rigid.Ready.Right. brand promise meant that costly delays were avoided as the balconies were Rigid, meeting our high standard of deflection (L/360 twice the British standard of L/180), they were ready

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## "Glide-On™ is far superior"

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ahead of the agreed date and they were Right, first time.

When asked how our balcony system compares to traditional balcony methods the project manager said "Miles apart. Glide-On™ is far superior". The rapid speed of install also took the project manager by surprise saying he "didn't believe it would happen". ■

### Key Stats

Architect: **Lewis & Hickey Architects**  
Developer: **Keir Property & Watford Council**  
Contractor: **Jarvis Contracting**

Balconies: **84 Cassettes®**  
Storeys: **6**  
Location: **Watford, Hertfordshire**

# Gherkin Fire Roundtable

Our most recent roundtable was held at our fire event on the 4th September at the iconic Gherkin, London. The theme for the event was “reducing fire spread in high rise residential buildings” and the morning roundtable of industry leaders focussed on the key direction to take for the future.

At the roundtable, a range of topics were covered and the need for cross-industry collaboration was clear. The consensus was that further roundtable events and other opportunities to bring industry leaders together would be helpful in facing industry challenges.

A key point raised was the need for a high level of quality control and traceability throughout the supply chain. A method of achieving this suggested was to have managers photograph everything at each stage to produce full records, similar to the Sapphire Passport app.



Another issue discussed was the lack of understanding from the Ministry for Housing, Communities and Local Government about the implications of the advice notes they issue. This leads to repeated amendments and updates to guidance and issues like the ban on laminate glass over 18M.

It was generally agreed that greater end user education is needed but the challenges to effectively communicating this guidance are significant. Many homeowners do not read the provided manuals and so fail to take the necessary action to ensure the safety of themselves and those around them.

Attendees were all in agreement that this conversation must be ongoing and further roundtables would be beneficial. The key to overcoming these industry wide challenges is collaboration and conversation.

See here for future events [www.sapphire.eu.com/events](http://www.sapphire.eu.com/events)





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- Boards cut to length to suit project\*

(\*MOQ and terms apply)



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# Looking Back on Pomona Wharf

Pomona Wharf was a record setting project for us, achieving 34 balconies installed in a day. Time was critical and in short supply because there was no dedicated site crane available. Offsite manufactured concrete wall panels were chosen and required use of the crane to be installed.

**With our brand promise we guarantee all balconies will be produced Ready for dispatch ahead of the agreed date, eliminating delays.**

It was essential that crane time was kept to a minimum and that balconies were installed as quickly as possible to keep the costs of crane hire down

To meet this requirement a high volume of balconies needed to be delivered to site smoothly and efficiently.

Once on site the balconies had to be unloaded and installed quickly to allow for further lorryloads to be delivered. This had to be achieved by working in synergy with the install of the wall panels and other trades on site. The first installation day reached a total of 24 followed by 34 balconies installed on the next installation day by Sapphire accredited installers McKean.

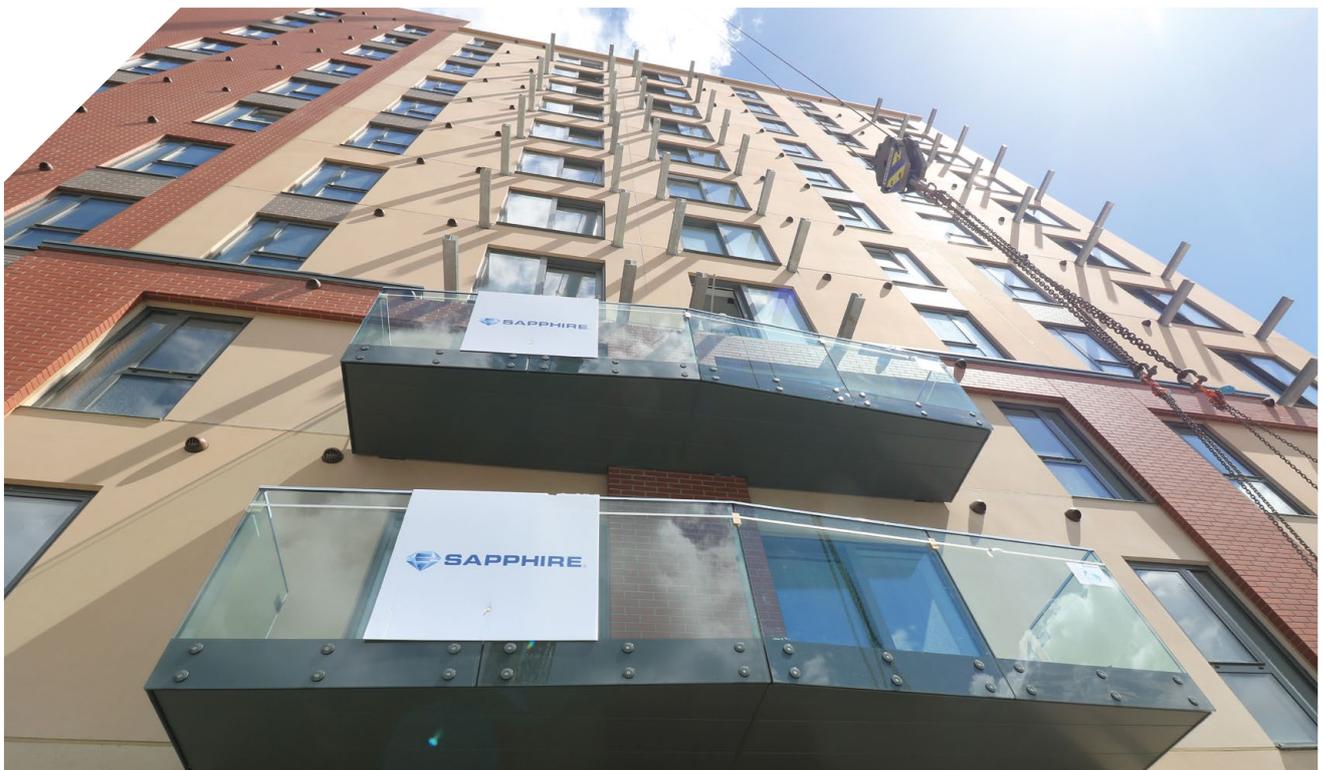
This was possible thanks to our offsite production and Rigid. Ready.Right. brand promise. With traditional JIT or Just In Time production the speed of balcony install is limited by the speed balconies can be manufactured and sent to site.

**The first installation day reached a total of 24 followed by 34 balconies installed on the next installation day**

With our brand promise we guarantee all balconies will be produced ready for dispatch ahead of the agreed date, eliminating delays.

At Pomona Wharf, this meant balconies could be transported from secure storage at Winchester to site as required without delay avoiding additional crane costs and keeping the project programme on track.

Read the full case study here: <https://sapphire.eu.com/case-studies/pomona-wharf-trafford/>





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# Your challenge, our solution

## Your challenge

Finding the right lightweight, quick to install balconies for your MMC/Offsite constructed concrete, steel or timber frame project.

## Our solution

Sapphire's revolutionary aluminium Cassette® balcony system. Glide-On innovation enables rapid installation of factory finished balconies to reduce onsite costs and program. Contact us to discuss your MMC project challenges.

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