

Steel the solution for better streets

Jones of Oswestry director Michael Miles looks at how 'Inclusive' design has taken on new meaning in the delivery of St Helen's award-winning town centre improvements and how landscaping steel has flexed its capabilities to play an important supporting role.

Many needs converge on the design of modern landscaping steel – drainage gratings, access covers and tree surrounds – for pedestrianised areas.

In-ground products like these need the structural rigidity to withstand heavy wheel loads from emergency and delivery vehicles. But they also need the visual finesse to harmonise with design aesthetics, and should allow easy operation with minimal effort in line with CDM and manual handling regulations.

Drainage gratings must provide sufficient void space and hydraulic capacity to cope with heavy stormwaters. But slot sizes need to be restricted to prevent the risk of trapping heels and tapping canes, in light of public liability and the DDA.

Tree surround units must allow for organic growth and ensure adequate aeration to the root soil thus protecting its pH value. But they must provide the rigidity to spread mechanical loads away from the tree.

Award-winning

Steel's versatility in harmonising these and other needs in contemporary pedestrianised schemes has been put to the test in the award-winning refurbishment of St Helens town centre.



St Helens Council joined with main contractor, Mayfield, to deliver the ambitious £6.7 million programme of landscaping upgrades through an innovative partnership, with environmental sustainability as the key driver.

Completed over four years (2004–2008), the landscaping improvements have transformed the town in hand with extensive building redevelopment and refurbishment.

With a key objective of setting KPIs (key performance indicators) that 'challenged the notion of industry improvement', the project has won acclaim for its sustainable approach to design and construction, and channeling benefits to the local community and economy.

Industry recognition has included gold medal winner for 'Innovation/sustainability' at the national Green Apple Awards, a Considerate Constructors award and 'Environmental business of the year' from the Groundwork Trust. Mayfield also won a 2007 BALI hard landscaping award for St Helens.

Sustainable strategy

Involving local people at every possible opportunity, St Helens' sustainable strategy has focused on four key elements: natural resources, environment, and social and economic impact.

Sustainability has been facilitated through wide-ranging measures and initiatives. These have ranged from minimising construction waste on site and recycling materials for other council projects, to providing job and training opportunities for young people and testing landscaping products on user groups.

With a need to evaluate the sustainability of design solutions and whole life costs, key suppliers were involved at an early stage. Known for pushing standards in its area of expertise, Jones of Oswestry was asked to consult on and supply steel landscaping products.

Warren Hough, Contracts Manager at Mayfield, said: "We were aware of the quality and technical profile of Jones's products, in particular their recessed range, from work on previous landscaping projects. As a supplier with an innovative

edge, we were confident they would meet, and even add value to, the design criteria and challenges imposed by the sustainable approach at St Helens."

The use of recessed formats of access covers, tree surrounds and surface drainage was an obvious choice, offering significant aesthetic, safety and DDA-facing benefits, and defining the quality of work.

Fluency

By allowing infill with block pavements, recessed units maintain the fluency of paving designs, uninterrupted by the incongruous shapes of in-ground metal. In maximising paving coverage and minimising metal presentation within landscaping, they reduce the presence of slip differentials between paving and metal, thereby reducing risks of a slip. They also provide a consistent travel surface to aid the passage of wheelchairs, prams and bicycles.

During initial discussions, it was obvious that key design features of Jones' range fitted very neatly with project aims, and could inform assessment criteria for other landscaping elements.

Firstly, Jones provides site-specific, demonstrable data on product longevity, based on scientifically established 'weathering' rates for zinc galvanizing.

Jones adjusts the Duragalv post-galvanised protection it applies to products to factor in required service life (typically 25 years for public realm schemes), local atmospheric corrosivity and the aggravating effects of gritting salt and de-icing agents.

This measurable longevity was a clear advantage in meeting one of the project's key sustainability drivers: sourcing the best value products based on whole life cycle, not just initial cost.

'Whole life'

The advanced structural specification of Jones's recessed products was another important advantage to 'whole life' assessment.

Covers and frames are manufactured from industry-leading, extra thick specifications of steelplate – a minimum 6mm, and sometimes 8mm or 10mm. Not only does this promote the formation of thicker zinc coatings for longer life, it assures greater rigidity and load-bearing integrity to protect the critical interaction of the recessed cover and locating frame.

Jones's exacting structural blueprint for all of its recessed products ensures that covers do not deflect or deform under load, and frames do not warp or rotate when subject

to horizontal or vertical impact. Such defects can leave metal edges prone, and cause inlaid or abutting pavements to crack and/or dislodge, posing serious trip hazards.

They can also distort the all-important 'fit' between the cover and frame, jamming the cover. Not only does this hinder productivity, it poses a risk of injury to operatives attempting to remove the cover. It also delays response times if urgent access is required to a problem underground.

Inwardly tapered sides to the cover further protect against jamming. Together with precision manufacture to exacting tolerances, this prevents accelerated wear and tear from cover 'rock' and the attendant noise nuisance. Underbracing and full flanges to the frames add to system stability in service.

These increased strength factors also protect against other mechanical impact, such as vibration, abrasion and suction from street cleaning machines.

Maintenance-free

By assuring long-term, maintenance-free performance, these rigorous levels of structural integrity score well in terms of sustainability, value engineering and whole

life costings.

They also solved longstanding problems which St Helens asset and highways teams had experienced in sourcing serviceable tree surrounds. Arborslot recessed tree surrounds have been used as part of extensive tree planting to green up and soften the streetscape.

John Sheward, asset manager with St Helen's Council Environmental Protection Department, said: "We had encountered numerous problems in the past with the design and quality of tree grids and grilles. Due to ground settlement or heave, wheel loads and mechanical impact, they would come loose, displace and crack, causing hazards and leading to complaints from the public.

"As well as providing structural integrity, the Arborslot recessed surround are visually pleasing, integrating seamlessly with paving and supporting excellent pedestrian and wheelchair mobility."

User groups

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User groups who were invited to assess the product, were also excited by the benefits.

John Sheward said: "We outlined features and showed pictures of Arborslot

