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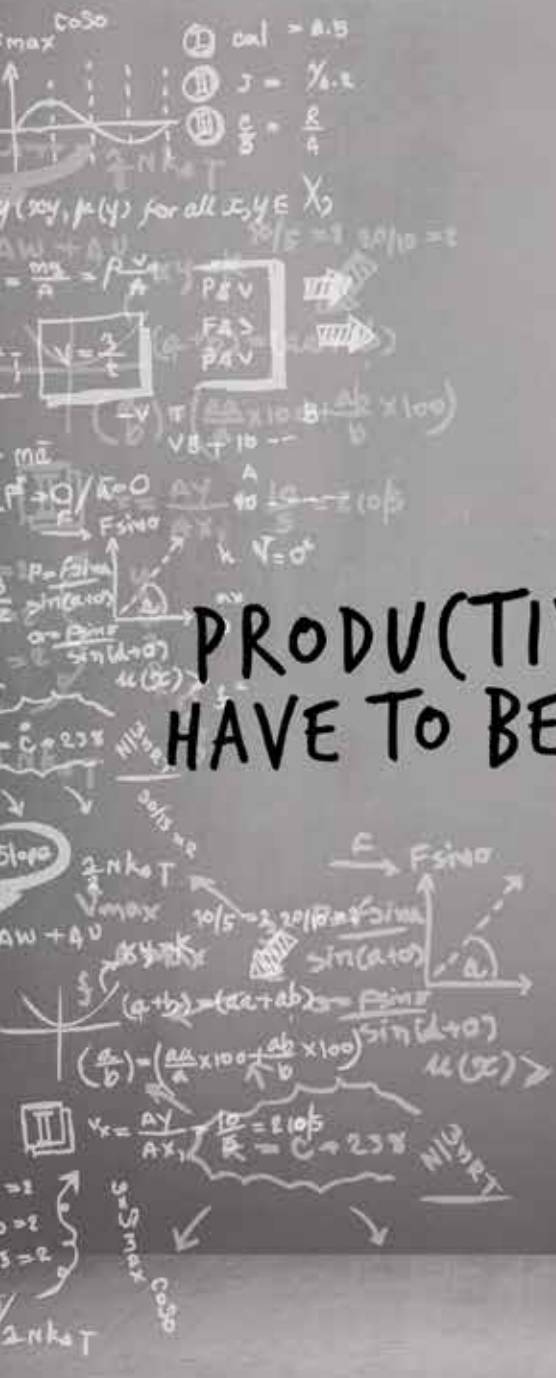

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Access all hours


The new Farone Elevah-40X

Selecting the correct access equipment for use in industrial and institutional applications can be challenging as it can be used for such a wide range of duties from maintenance, cleaning to major repair work and plant layout changes. We take a look at the problems of choosing the best equipment for the task, which can make it easier, safer and often a great deal more efficient.

Traditional factory shutdown/ vacation maintenance work is gradually becoming a thing of the past as planned maintenance, improvement and renewals work is increasingly carried out during work hours or when not possible overnight during the working week. However more significant changes that involve greater disruption do tend to get left to this time of year or at year end, during major plant shut-down periods. This usually involves working to a deadline, so safer more efficient equipment is more critical than ever.

Access equipment manufacturers have developed and expanded their product ranges, improving performance and availability with products now available to suit almost any pocket and any application. In spite of this there are still far too many companies using inappropriate, damaged and dangerous equipment, while thousands of companies remain oblivious to the benefits of powered access! Most major construction sites are now tuned into using modern access equipment, whether powered or modern scaffold and staging products, yet as with smaller builders, many industrial or commercial facilities try to get by and make do, and yet it is just not worth taking the risk. In domestic situations the use of proper access equipment is even lower to non-existent.

For those production facilities, warehouses and other permanent work facilities, where planned maintenance regimes are not in place, work at height tends to be unplanned and therefore safe efficient access equipment rare, resulting in plentiful examples for the 'Death Wish' series on Vertikal.net.


Plan your work at height or you could end up with a 'Death Wish'

Selecting the right platform

But if you are the general manager of such a facility how do you go about selecting the right equipment for the various needs that are thrown up during a typical year? A good deal depends on the specific tasks that need to be carried out, how often they need doing and whether you do work with your own staff, or employ a specialist sub-contractor. The financial aspect will of course depend on the equipment you are looking at - a step ladder will be quite a different proposition to say a large boom lift.


Step ladders, mobile stairs and small mobile scaffold towers still have a very useful and important role to play in low level work at height.

If you looking for access equipment to carry out regular work at height, involving essentially the same job such as regular routine cleaning, then it will be worthwhile considering buying the equipment. For low level work - say up to four metres which is fairly typical for many small industrial units, offices, showrooms and retail outlets - then there is an incredibly wide choice running from large step ladders - some topped with a work platform - to a self-propelled scissor/mast lift, or at the top end, a mast boom.

Ladders require training

Step ladders, mobile stairs and small mobile scaffold towers still have a very useful and important role to play in low level work at height, particularly as they as they are relatively cheap to purchase and maintenance requirements are negligible. However that does not mean that they can be neglected. They should be inspected regularly and the people using them must be trained on how to use them properly. The down side is that they need to be carried to the work place, set-up properly and require the user to climb - with tools, cleaning equipment or boxes etc - all of which can lead to a trip or fall hazard.

No climbing

A self-propelled lift of this height is far more user-friendly often featuring a low step-in height, while eliminating the climbing aspect. It can drive to the work area with tools and cleaning equipment on board and then be elevated to the optimum position to carry out the work at hand. If the work involves frequent repositioning, then the efficiency gains offered by a self-propelled machine may well lead to a decent payback on the extra cost involved.

The choice of machines with a working height less than 5.5 metres is now substantial and includes low level models such as the Power Tower Nano SP with its 4.5 metre working height and deck extensions of up to a metre, for working over obstacles. Similar models are available from Faraone of Italy which specialises in the industrial and institutional market below 10 metres and others.


The Faraone Elevah 40X, is a 100 percent mechanical, push-around platform that doesn't use a motor or battery

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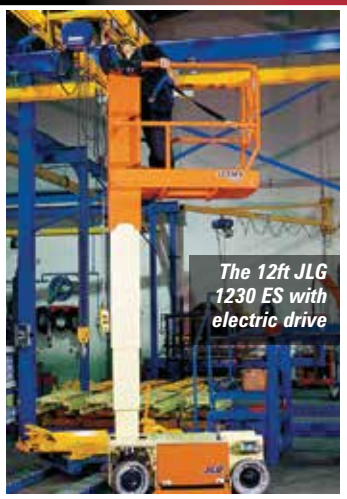
In order to raise the Elevah 40X the operator uses a hand held drill

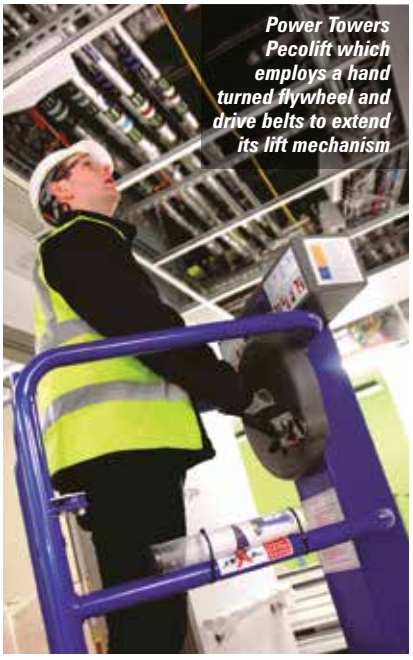

Big Astor Mak 1


The 12ft JLG 1230 ES with electric drive

Mechanical Faraone 40X

Faraone has launched a new version of its four metre working height Elevah at Vertikal Days, the Elevah 40X, a 100 percent mechanical, push-around platform that doesn't use a motor or battery although it does have a sealed closed circuit hydraulic system. In order to raise the platform the operator uses a hand held drill to drive a platform mounted pump which operates a hydraulic telescope cylinder which extends the mast with the help of drive belts. The drill also powers the platform down, but should its battery run down there is a platform-mounted emergency descent that can be used.

The entire machine weighs just 170kg and can be loaded in the back of a small van. The new machine is undergoing its final endurance testing and ought to be ready for sale sometime in September. This is the latest machine in a trend on low level units to do away with built-in batteries and electrical systems, spearheaded by Power Towers Pecolift which employs a hand turned flywheel and drive belts to extend its lift mechanism. The benefit of these types of machines is that they can be left in the corner of the warehouse or showroom for months on end and called into use without fear of flat batteries, sticking valves or a seized motor.


Power Towers Pecolift which employs a hand turned flywheel and drive belts to extend its lift mechanism

Leading Chinese producer Dingli also offers a wide range of lower level self-propelled machines with, both a mast type lift structures, as does Italian manufacturer Big Astor/Genius which has a new four metre working height push-around lift the Mak 1. The new lift includes a built in battery and charger, a 1.16 metre by 790mm platform with a capacity of 130kg, and yet the entire machine weighs just 94kg. It also features removable sliding side rails, drastically reducing its overall height to 520mm so that it can be transported in a car or small van.

Low level scissors and above

Next are the low level scissor lifts, essentially lightweight push around machines with added drive motors often using wheelchair technology and controls. These are now available from Dingli, Imer, Airo, Youngman and Custom Equipment although its Hybrid models are purpose-built as self-propelled machines.

Moving up the height range we come to the 12ft mast lifts, not mast booms. They feature a mast in place of a scissor stack, but operate in exactly the same way as a traditional scissor lift. The mast boom on the other hand has a jib with decent outreach and a slewing superstructure. The mast-lift products generally offer working working heights of up to 5.6 metres and were made popular by the UpRight TM12, which is still going strong as the Snorkel TM12. Since then however a number of other very similar models have appeared from competitors including JLG's 1230 ES the Skyjack SJ12 and with just a little more height, the six metre Haulotte Star 6 and JLG Toucan Duo.

Direct electric drive

A key consideration on machines of this height is the drive system, they have typically used the same running gear as a regular 15 or 19ft scissor lift. However, an increasing number, led by the JLG 1230ES, now feature direct electric drive - with the latest Haulotte employing direct AC electric drive, while Snorkel showed a direct drive TM12 prototype at the ARA in February. Direct wheel motor drive does provide increased battery life - especially when a good deal of travel is required - which can be a real benefit when used constantly across a large manufacturing facility or warehouse. The battery life on some are so good that the lift can almost be used as a buggy for the maintenance crew, ensuring that they always have the access equipment on hand for immediate use.

An alternative to the mast lifts is the 12ft compact scissor lift pioneered by American-based Custom Equipment in the form of its Hybrid 12E. It is almost dimensionally identical to the 12ft mast lifts but critically offers a larger platform as it does not have the mast taking up platform space. The Hybrid 12E also uses twin wheels on the steering axle which it says, prevents carpet rucking up when turning sharply.

Earlier this year MEC also introduced a sub-compact scissor lift into the sector with the 1330SE, which is slightly higher than the Hybrid 12E with a 5.9 metre working height. It joins the 13ft Dingli JCPT0607DCI and JCPT0607DCS, announced at the end of last year. Finally topping the mast/compact scissor lift sector is the 16ft mast lift from Skyjack in the form of the SJ16. This can be handy for buildings with higher ceilings where the 6.8 metre working height allows it to reach the higher areas in most production facilities. More recently the bigger Skyjack mast lift has been joined by the 6.6 metre ATN Piaf 66 which uses a forklift-type mast, rather than the box sections used by most other manufacturers.


Dingli has a wide range of lower level platforms

Larger still

Moving up the working height range, but leap frogging the regular 19 to 26ft compact slab scissor lifts to machines with working heights of 10 to 12 metres, you will also find an increasing array of alternatives, that are well suited to internal work. They include mast booms, ultra-compact industrial booms, as

well as an increasing selection of lightweight or heavy duty electric scissor lifts. The mast boom though is a product designed for industrial or commercial environments, and offers a narrow chassis - typically just under a metre - at least 180 degrees of slew, and anything from 1.5 to six metres of outreach the most popular are those with 10 metre working heights and around three to four metres of outreach at a height of around six to seven metres. They are ideal for working over obstacles such as over the top of a machine tool, shelving or racking.

Another excellent lift for industrial situations are the battery powered, industrial type articulated booms, often dubbed 'Dustbin lifts' due to the shape of their superstructures. Skyjack recently launched its 30ft SJ30 with or without an articulated jib. Most platforms in this sector look very much alike and have similar performance characteristics, but all have working heights of around 10 metres, are 1.2 metres wide and most now have rotating jibs. Outreach is good at about six metres, however as a result the up and over height is lower than for a 10 metre mast boom, at around 4.5 metres. If outreach is critical then these are a better bet than the mast boom, but there is a trade-off with greater overall weight and the wider chassis. Skyjack says that it identified drive and duty cycle performance as one of two key parameters when developing its new lift, - the other being outreach - so it has stepped up the battery life with direct AC drive and regenerative braking. It also offers a little more outreach at almost 6.3 metres.

Lighter articulated booms such as the Niftylift HR12 might suffice

Two JLG E300AJ 'dustbins' carrying out maintenance work

Mastbooms are narrow enough to work between compact aisles

If width isn't a problem then the lighter weight articulated booms such as the Niftylift HR12 - which established the sector in the 1990s - Snorkel's AB38E, JLG's 340 AJ and the recently launched Genie Z33/18 would be well worth a look. Overall width on these units is typically 1.5 metres and weight is around 3.5 tonnes with a 12 metre working height and around 5.5 metres outreach. The Manitou Man'Go was launched last year and is now finding its way into rental fleets, while designed for outdoor use, it has a working height of 11.9 metres, but unlike the units mentioned above does feature a 1.5 metre articulated jib.

Battery powered boom lifts

Whatever the platform if you are working inside a building you will need equipment that is emission free and quiet. And if you also need greater working height and outreach your options include hybrid or bi-energy booms and even tracked lithium/bi-energy spider lifts.


Spider lifts can manage most situations

Most of the access manufacturers now offer battery electric booms up to 15 metres or so, but the upper limit is moving fast, led by Niftylift which now offers electric or hybrid models for all of its boom models, including the 86ft HR 28 articulated boom which offers a working height of 28 metres. JLG has also offered a 60ft electric or bi-energy boom lift for many years in the form of the M600 series. It has now been joined by Genie which unveiled its new direct electric drive Z60/37DC in February, followed by the bi-energy or Hybrid version - the Z60/37FE in April. Both models offer direct electric four wheel drive, making them excellent machines for outdoor and Rough Terrain applications as well as being suitable for internal work.

While the Niftylift HR28 had the market for 80ft plus electric powered booms to itself for a short while, it has been joined now by a battery powered 80ft JLG 800AJ designed and built initially for airline work for one its customers by its Dutch distributor Riwal. But it has now developed the product for sale over a wider area and recently delivered its first unit to a Swiss customer.

Electric spider alternative

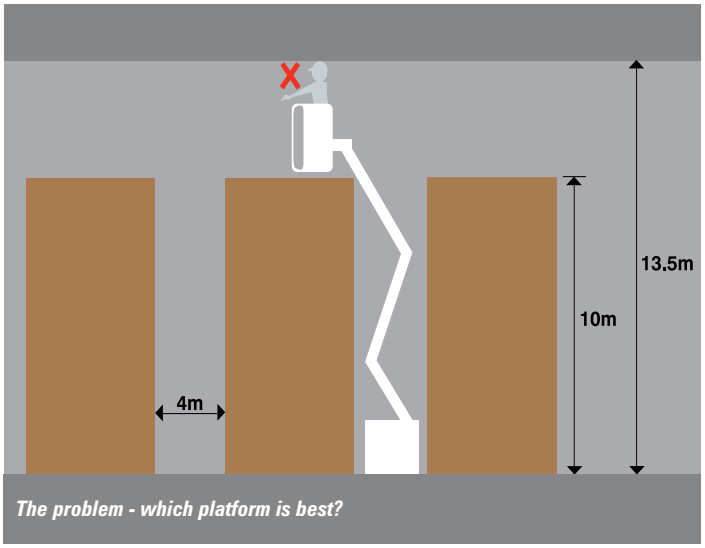
And finally to spider lifts where more than 25 manufacturers are now offering this type of lift in what is a fast growing market. A spider lift can just about manage any situation - narrow enough to access the most restricted work spaces with good working height coupled with more than adequate outreach. The only down side for work in confined spaces is the fairly large outrigger spread, but the legs can often be positioned in between obstacles allowing the lift to set-up in tight areas.

Spider lifts start at about 13 metres and run to working heights of more than 50 metres, however these higher working height machines are physically huge. The most popular sizes are between 13 and 22 metres. An increasing number of them now feature high power lithium ion battery packs that make them even more attractive for inside work. Hinowa has pioneered lithium power packs since 2009 and now has a range of lithium powered spider lifts from 15 to 26 metres. The lithium battery power packs are sufficient to keep the machine going through heavy cycle duty work for around five hours. They can also be charged far more quickly than the traditional lead acid batteries.

As can be seen from the real-life example we highlight on page 30, there are normally many types of equipment able to successfully, safely and cost-effectively carry out a specific work at height task, so there is no excuse for not using the right equipment and planning the job correctly rather than hoping you stay lucky when using makeshift access equipment such as a pallet on the forklift.


Spider legs can sometimes be a problem to position

Which platform is best?



The problem - which platform is best?

If you are a regular reader of this magazine you will be more than aware of the increasingly wide variety of access equipment that is now available. We have also written much about the when and why certain machines are better for one situation than another. But we have never actually had a real-life example to find a machine which would be best for a specific job.

A reader recently contacted the Vertikal Press office with a problem - he needed an access platform that could reach 1.5 metres over a large 10 metre high racking system to access a rooflight 13.5 metres high. The distance in front of the racking is five metres and as it is a two-man job with tools, the platform capacity needed to be in the region of 250kg.

Now we didn't go into too much detail as to why the rooflight was in such a difficult to reach position, what needed to be done to it, or why it needed two men and initially thought it wouldn't be a problem finding a machine that could carry out the work. The exercise proved an enlightening experience really driving home the advantages and disadvantages of each type of equipment. Other factors such as ground loading, access and zero emissions were not mentioned but could also be critical in the decision making process.

Outreach of the ATN Piaf 12E is good but up and over height and maximum working height rules it out

Mast boom

Now our first thought was that 1.5 metres is not a great outreach so most platforms would be in the running - a mast boom, articulated boom, straight telescopic boom, small vehicle mounted lift, spider platform etc - obviously instantly ruling out those with zero or little outreach such as most scissor lifts and low level push around equipment because of the 13.5 metre working height. However it soon became obvious that the critical dimension here is getting over the 10 metre high rack and achieving the outreach required, not to mention the overall height.

For something like a mast boom - even ATNs latest Piaf 12E which has 5.1 metres of outreach - it only has 7.3 metres of up and over height. The Piaf 12E was also ruled out because its maximum working height is just 11.83 metres and platform capacity 200kg. JLGs largest mast boom - the Toucan T12E Plus has more outreach at 6.05 metres and an up and over height of 7.12 metres - but still too low. So mast booms bite the dust.

Mast lifts such as this Snorkel TM12 are also ruled out because of the working height and lack of outreach

Articulated and straight booms

Next up, the articulated boom. A working height of 13.5 metres is no problem at all, but would it not have to be a largish boom to achieve the 10 metres up and over requirement? Scanning through Genie spec sheets we can see many articulated Z booms above 13.5 metres such as the Z40/23, the Z45/25 and the Z60/37. However even the Z60/37 with a working height of more than 20 metres only has an up and over height of 7.39 metres. Looking closer at the job, however and its modest outreach requirement, it soon became evident that as long as the main boom pivot point was up at around six to seven metres an articulated boom could reach, not up and over, but getting enough outreach over the obstacle.

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Even 60ft booms such as the new Genie Z60/37FE only offer an up and over reach of 7.5m

This then included a wide number of machines, so now to find the smallest, most widely available or one that might best meet other unknown criteria, such as weight, width and power source etc.

We looked at the Snorkel AB38 which has a working height of 13.5 metres, its up and over height is only five metres, but could still clear the 10 metre obstacle, however at the 13.5 metre height it was nowhere close to the modest 1.5 metres of outreach. The Snorkel A46JE certainly has enough working height at 16.3 metres and after clearing the obstruction would have the space to position the man in place - made easier by the 1.5 metre rotating jib. Platform capacity is also just about all right at 227kg. A quick survey found that this applies to all manufacturers with similar machines and even slightly smaller models, such as the 40ft Genie 40NRJ, Niftylift HR15, JLG E400AJP, Haulotte HA15IP and the Skyjack 46 AJ - although this last unit is only diesel powered. All can reach with their dual risers fully extended, boom raised but retracted and jibs horizontal.

Taking the Snorkel as an example, its 1.7 metre width leaves plenty of room to position itself back from the rack a little if needed, to give the boom a shallower angle and therefore more outreach. We were not informed of any weight restrictions, but the AB46 is a hefty 6.8 tonnes so may be an issue?. The 43ft Niftylift HR15 on the other hand only weighs 4.5 tonnes, the Hybrid would be the best model for indoor work and it is slightly heavier at 4.8 tonnes, still a substantial lower, and it is still only two metres wide.

All these articulated booms have much more outreach than necessary but need the articulation point high enough to allow the boom to reach over the obstruction at 10 metres without the need to stand too far back. This is the main reason why straight boomed platforms are not ideal, they have no problem with the working height and outreach over the obstruction but where it falls down is that room it requires in the aisle to reach the work, although in this case 1.5 metres is achievable if the unit has a decent length jib. In crane terms it is similar to why a mobile tower crane can work right next to a building, while an All Terrain needs to be stand further back to reach over.

Articulated lifts such as this Skyjack 46 AJ would be able to reach the problem position.

Spider lifts

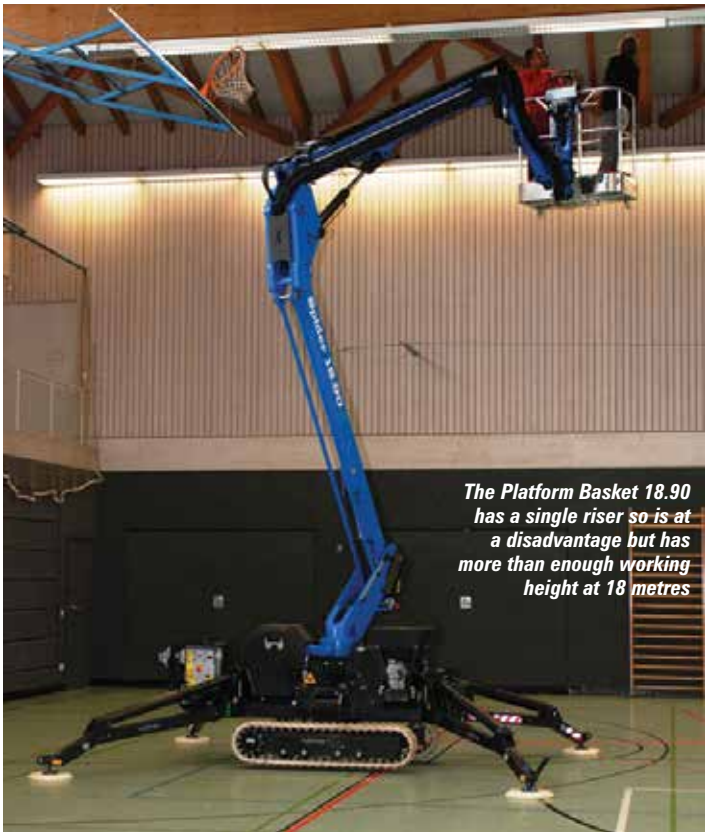
We have often cited the spider lift as the 'jack of all trades', the platform that can cope with almost every application - narrow enough to gain access into the building and track into position, and with enough working height and outreach for most situations. But can it cope with this problem?

We started by looking at the new Platform Basket 18.90 Pro E, since the spec sheet was already on our desk. On paper it has more than enough working height at 18 metres and up to 9.2 metres of outreach. However it is not the outreach but the height of the articulation point that counts. This unit has a single riser so is at a disadvantage, however the fact that the outrigger spread requires it to stand back a little, and that it has a jib means it can reach, the relatively modest 1.5 metres.

With a travel width of just over one metre, it can easily access the area but the outrigger spread is a downer, but even this 18 metre 18.90 Pro E needs just 3.7 by 3.1 metres to set up, could manage it. And with a weight of less than 2,500kg it is significantly lighter that the other equipment, allowing a much lower floor loading should that be a factor. The Pro E also has a lithium-ion or plug in electric power if necessary for zero emissions inside the building.

Can we go smaller? Well the Hinowa 15:70 can also reach, as will most spider lifts with dual risers. The 15:70 has the advantage of being even narrower with a footprint

The 43ft Niftylift HR15 only weighs 4.5 tonnes although the slightly heavier Hybrid version would be the best model for indoor work



The Platform Basket 18.90 has a single riser so is at a disadvantage but has more than enough working height at 18 metres

The smaller Hinowa 15:70 can also reach

of just 2.8 metres square, while weighing less than two tonnes. Some spider lifts will also allow asymmetrical outrigger set up, to reduce the width, but not usually at this height.

Finally on spider lifts, if the outreach requirement had been greater than 1.5 metres, the ideal machine would be a unit like the Multitel SMX225 which has a clear up and over height of 10.5 metres and can reach almost nine metres horizontally at that height, albeit with 200kg platform capacity. A narrower width outrigger configuration is also available.

Any other equipment?

Well there are several other access platforms that may welll do the job. The first is the van mounted platform, such as a 14 metre Versalift ETL 38-F. A bit of overkill but it can certainly carry out the work as it has a jib and the top articulation point is about 10 metres high - ideal in many respects. Fuel emissions would be a problem, unless you use a hybrid model. The vehicle width is narrow enough for this particular job. Platform capacity is good at 230kg. Most 3.5 tonne truck mounted platforms, such as the articulated Multitel MX 170 would also work admirably, but again do you really want to driving a

The Multitel SMX225 has a clear up and over height of 10.5 metres and can reach almost nine metres horizontally.

ATN Piaf 12E

Platform Basket 18.90 Pro.

Airo X14EW.

There is another type of platform that will do this task - the scissor lift with a 1.5 metre platform extension such as this Airo 14EW.

truck inside the facility? And let's be honest few aisles are this wide.

And finally there is one other type of platform that will do this task and surprisingly it is a scissor lift - but with a 1.5 metre platform extension. This rules out all but two manufacturers - Holland Lift and Airo - and two reasonably-sized models the 46ft, Holland Lift HL-160 E12 and the 40ft Airo X14EW. The smaller Holland Lift HL-130 E12 has a massive 1.8 metre deck extension, but its working height is just a touch short at 12.7 metres. The Airo has a platform capacity of 350kg and the Holland Lift a massive 750kg. This shows in their overall weights at 3,365kg and 7,550kg respectively. With scissor lifts of course you do need the space to allow them to face the rack lengthwise, which is not always the case, but with lengths of 2.4 metres and 3.74 metres this shouldn't be a problem here.

So there we have it. What initially seemed a simple problem in the end has several solutions - articulated boom, truck and van mount, spider and scissors - but which one to choose? As always it often boils down to the equipment of your regular supplier. Cost wise the articulated boom or scissor lift would probably be the cheapest but it may depend on other unknown factors such as weight (the spider is easily the lightest) zero emissions - most have electric or hybrid options but not all rental companies stock them - and restricted or clear access. The choice is yours…

Spiderlifts are narrow enough to gain access into the building and track into position, and with enough working height and outreach for most situations

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