

Used Equipment – The Snake Pit



Above a professional installation by our engineers

Under Investment = Under Achievement

People also use pallet racking to create mezzanine floors, as well as reusing in racking installations. It's a very effective technique when constructed in new materials. I have seen many constructed from used materials. Below are addressed some of the issues arising from using uncontrolled materials where there is no history or condition reports.

More often than not I find new and especially used equipment appallingly constructed. The used market is not regulated. The pressure to deliver profit today or just dump cost without regard to the future has brought about much of the current depression and it is very short sighted. Good investment always works – look at the higher end of any successful market – housing, retail, films, motorcars, hotels, the Government sponsored work in the armed services, nuclear power etc. Good quality is worth more, lasts longer and has a good residual value, in many cases adding to the worth of an enterprise.

The Right Attitude

Some of our best businesses would never have happened if instant profit was the essential ingredient, we certainly would never have had Dyson cleaners, light bulbs, televisions or many of the wonderful foods and inventions we enjoy today if it had just been down to money. Lack of money finished the canals because they would not invest in the water they needed. From dereliction, a hand full of enthusiasts have transformed them into a network of leisure, homes, holidays, sport and fabulous nature reserves. They carry twice as much traffic today than in their hay day and bring in tourists from all over the world. The nation now has a Vulcan bomber and some fantastic skills preserved with it for which we have a queue of enthusiasts wanting to rebuild Spitfires, Lancaster, SE5's and much more, all driven by

enthusiasm and quality. My world is full of enthusiasts and people who care about money but care more about life – welcome to my world.

How to Avoid the Snake Pit

As an engineer my life has been devoted to inventing better and lower cost options, saving money and adding safety and value. I have produced up to 14 times cost in savings and significant price improvements because engineers have shown me how to do it and because I have made it a personal goal to achieve it, to live up to what I think engineering is all about. If bad practice was rare, I would not waste my time writing this article. I leave you to draw your own conclusions so next time you will be better placed to buy wisely or appoint someone like me to ensure you can't become the unsuspecting victim of what is an unregulated and potentially lethal market in which you actually, in some cases, pay more than new to compromise your life with inferior equipment built for someone else and salvaged on an opportunistic basis, then left to rust before being butchered back together for you. I am sure many people in the used equipment market will disagree with me and I would instantly withdraw this article and would love to if only I had to make an effort to find these examples which are everywhere I go.

Pallet Racking

The problem is that many of the most amazing products designed to save us money, made to incredibly fine tolerances on millions of pounds of equipment developed over generations of experience, fall into the hands of people who are untrained and unsupervised and completely unqualified and frequently under-funded. It is dangerous and in some cases life threatening practice, to neglect equipment and then offer it for anything other than scrap. Hardly a week goes by when I don't come across it. Please, please just imagine your own children were working or playing with this stuff – if it is not safe for them then it is highly unlikely to be safe for anyone else's children and here is why:-



These pallet rack beams were 2000kgs capacity per pair. With a single coat of hot temperature cured paint finish they were made probably 20 years ago and were specified to be used indoors in dry conditions. They have sat out in the open for too long – they should be scrapped – but they are going to be used. Since the vendor doesn't have the correct size he will cut and re-weld them, only his welders are not qualified or supervised properly.



Not only will the welding process give off toxic fumes, lack of preparation will allow porous pockets to open up in the weld further weakening the join. They have not been cut square so further uncalculated strain is imposed upon the already weakened materials. A lick of paint later and it will be on the way to someone's factory and they will have saved maybe 20 to 50% on the new price, if they are lucky,

nothing on the transport and have no calculations for the work. The buyer has just bought a time bomb.

The manufacturing mills outlaw this practice - no exceptions.



The rack frames are even more dangerous, designed to take huge vertical loads on only 2 mm or less of metal thickness. The corrosion has randomly eaten into over half a millimetre of it in places, but a lick of paint will sort this out. Additionally some minor kinks go unnoticed, you can hardly see them once painted and some have straightened out quite well.

Once again these frames are in service when they should be in a scrap yard for recycling. These frames used to be able to take between 6 and 10 tonnes a bay, they will be loaded to over the lower limit. No tests, documents or inspection report will be issued. They should not be used.

Nothing must be placed on strapped assembled frames and packing should be used to protect the profile – you won't see any in the photo above of rack which is for sale for re-use



This frame was being subjected to several tonnes of loading in a drive in rack with the name of the supplier proudly displayed at the door. Only one floor fixing bolt had been installed per frame out of the four that should have been in place and even that was very loose!!! Damaged rack is a problem that is usually overlooked or ignored – big mistake!



When catastrophe strikes – and it will, it won't make a sound, metal is a silent killer not like wood which at least creaks and groans before it fails. Thankfully we make them so well that a serious amount of neglect is required for this to occur with European standards governing the creation process.



Mezzanine floors



I have **never**, ever yet seen in 38 years a completely, correctly installed used mezzanine – really! None of these pictures were hard to find.

The pictures below tell their own story. I took every one of them following a recent inspection, they are good examples of dangerously bad practice

The holes in the web of the blue structural floor beams were there from what we call an inset build. It has been reassembled as an oversailed structure and the buyer has been told it would be safe to take over 500kgs loading per square meter. The thinner cold rolled sections would take this load transmitted onto the blue structural beams but instead of helping to share and distribute the forces they are taking the entire load – weakened by the drilling of the load bearing web clearly visible.



This salvaged section should not have been fitted here. Note the water damage to the floor – which may indicate salvage from fire or flood or very poor storage facilities. Either way it is not fit for purpose. Further evidence that this floor was ready for scrapping off before being sold to our unsuspecting and trusting “mark”.



The bolt you can see has no nut and the second hole is empty.



The illustrations to the right above show how the hot rolled sections should be joined on floors I have designed and built. To the left, the bolts are not even tight, the assembly is wrong anyway and it simply was never designed to be used like this.



There are joining plates made for fixing cold rolled structures – they would not ever be used for this application (right), nor would any engineer allow this material to be deployed in this way – it is in permanent danger of collapse.



This is one of the worst sights I have come across. The main load bearing column incorrectly fitted is not even straight, the ground plate was bent and fixings were loose and missing.

Yet more evidence of unbelievably awful and dangerous work with products which should never have been used like this and this is by no means rare.

