

Method Statement: Fitted Joinery – Park Farm

Project Element: Sandblasting of internal timbers

Location: Park Farm, Henfield

Prepared for: Listed Building Consent Application

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THE ABRASIVE BLASTING PRINCIPLE

For those who have never encountered abrasive blasting before, I will endeavour to explain the principle. At its most basic level, it is a jet of high pressure air emerging from the end of a hose pipe, into which a steady flow of dry abrasive is introduced. The result is an abrasive jet of air that can be directed 'at will' against timber, stone, brick or steelwork. This is a highly efficient way to remove paint, varnish, stain or rust.

There are many makes of machines on the market and they all work on the same principle. The variation in performance and application however, is completely in the hands of the operator.

THE RELEVANT CONSIDERATIONS ARE;

- The type of abrasive used.
- The power of the air supply. (i.e., compressor size)
- The size of the jet nozzle used.
- The ratio of air to sand.
- How close the nozzle is to the work being stripped.
- Most importantly, the angle and direction of the blasting.

All of these factors are variable and are altered according to the effect required. So, if you are removing many layers of paint from heavy steelwork, you would use very coarse grit with very high pressure to get the most powerful stripping action, knowing that you cannot damage the steel, no matter how long you blast it. This is Grit/Shot Blasting.

Alternatively if you are stripping stain or varnish from carved antique oak, you would use very fine sand and much lower pressures, always working at an angle that allows full vision and a delicate touch, to achieve the desired effect. This is 'Sympathetic Sandblasting'.

It is a fact that there are many operators with abrasive blasting equipment, who are dealing every day in the Shot blasting industry and steelwork. I think that this method of working should

be regarded absolutely separate from that which is required in Period properties. A completely different approach is needed. Working in a building demands that an operator is sympathetic to the history and fabric of the building, but that he also needs an 'artistic eye' for the finish. Which is the most important tool to be used.

WHEN IS THE BEST TIME FOR THIS WORK?

Having decided that sandblasting is the method to be used. When should it be carried out? Let's look at the problem under two categories;

- Empty houses or total renovations.
- Occupied houses.
- EMPTY HOUSES / TOTAL RENOVATIONS

This is the ideal time. Once all major structural alterations have been carried out, the sandblasting of beams, doors, brickwork, stone and inglenooks should be carried out. Preferably before other trades; i.e. Woodworm treatment, Electrical, Plumbing and Plastering.

If structural alterations are not involved then sandblasting should be the first job prior to Woodworm treatment and decorating.

The great advantage to working in empty houses, is that all of the sandblasting work can be completed and then the house can be cleaned from top to bottom in one go. Although looking at their house full of sand can be frightening for some, it is dry sand and can be 'vacuumed up' in a day. Much to their amazement.

OCCUPIED HOUSES

This makes things a lot more complicated, but certainly not impossible. In fact 60% of my work is within occupied homes.

I cannot stress strongly enough the critical part that the visit for the estimation plays in this category. This is when the client must be fully informed of what the process entails. They must be shown photographs of the equipment in operation, before and after pictures, and if requested letters of recommendation or proof of competence in this work. Of course all relevant questions and fears must be dealt with openly and truthfully. At this point not only does the client assess the contractor, the contractor must be sure that the client is determined enough to proceed. That they will cope with the DUST, and the effort of emptying the necessary rooms to be worked in as they move around the house. If the answer is yes, the work becomes a mutual aim and a partnership develops. The client must be closely involved and cannot have the attitude, 'You are the contractor, you deal with it'. Which is fine when the house is empty, but when treasured belongings have to be moved and protected from the dust, a different mental approach is required. It is very rare that problems arise if this formula is followed, and the general response at the end of the job is that it was all worth the effort.

One very important point which effects both of the afore mentioned categories, is that of neighbouring houses. If the house is terraced or semi-detached it is important to establish if

there are any 'Flying freeholds', (i.e. bedrooms over neighbours living rooms or vice-versa). In addition party wall beams that are exposed on the neighbours side as well. These must all be considered from the dust point of view. It is very easy to pump dust next door if care is not taken.

DOES SANDBLASTING DAMAGE THE TIMBERS, RAISE THE GRAIN AND REMOVE ALL OF THE HISTORICAL EVIDENCE?

Certainly if extreme care is not taken and expertise used all of these things will happen. That is why I must repeat that it is imperative that an experienced operator is used. Even a skilled person at times will encounter some problems. That is why I advocate the policy of carrying out trial sample areas at the start of the work. This enables the client to see the effect on their particular timbers, then any doubts can be removed. It is normally at this point that a sigh of relief can be heard, followed by comments of excited enthusiasm which indicates their delight at the result. In the rare event that a problem is encountered, it is usually from modern plastic based gloss paints, or epoxy fillers used within the last 30 to 40 years. This is when it is tempting to 'Wind up the pressure' and use a coarse grit. This must be avoided or damage to the fabric of the timber is inevitable. In this situation it is advisable to recommend basic chemical stripping followed by light sandblasting. This would give a more acceptable finish.

There are other factors other than inexperience that will effect the end result. Poor quality timbers are often heavily eaten by woodworm, due to the high volume of sapwood. At times they are pure powder held together by layers of paint, filler, cement and even fibreglass. Often there is little 'Heart' or strength to the beam and a replacement is the sensible answer. On quality cuts of timber however, the amount of sapwood is very small, usually at the edges in isolated spots. This, if attacked badly by woodworm it can be shaped with scrapers, sometimes down to the heart wood, in a very attractive manner. This process is called 'Defrassing', and would be used regardless of the method used to carry out the stripping. Having said this, I have had clients who prefer to have the frass left on, as they feel that it adds to the rustic charm. This of course, as with so many aspects of restoration work, is a matter of personal taste. My own opinion is that only the very loose excessive areas should be dealt with. The benefit of the sandblasting process is that these areas are instantly exposed, and can be assessed and dealt with accordingly. It is important to assess the overall feel of the room, and not concentrate on, and become obsessed with, small areas of woodworm that are not structurally weakening the timber. In rooms that are decoratively moulded, carved or quality chamfered, the defrassing must be kept to a minimum, in an effort to retain the geometrical contours of the original design.

An element of 'Raising the grain' is inevitable, not only from the soft part of the grain being eroded by the sand (which should be minimal), but due to the removal of the thick layers of paint that fill the contours of the surface. For myself, this is the beauty of the sandblasting process. To expose the attractive grains, knots and splits that have been blandly filled is exactly what is required, and the client is always delighted with the contrast. Of course I do understand the anxiety of the possibility of the extreme driftwood effect, which can easily be the result of using excessive pressures, the wrong abrasives or spending too long on stubborn areas.

The loss of historical evidence is again the result of the wrong approach. If a very fine white sand is used in conjunction with the correct pressure and technique, it is possible to wipe away the surface debris, uncovering all of the historic evidence. Creating the final picture and atmosphere of the room. Carpenters marks must be left dark, candle taper burns must be left burnt, and a general look of 'Antique' left behind. It is very easy to bleach everything the same colour, but the art is NOT WHAT YOU REMOVE, BUT WHAT YOU LEAVE BEHIND, taking into account the whole room and not each individual beam. If this level of skill and artistic interest is adopted, any damage that is uncovered is not from the use of sandblasting, but from that which has gone before.

POINTS OF HISTORICAL INTEREST

CARPENTERS MARKS - These can vary from ornately carved numerals or signs designed to locate matching joints at assembly, to simple scratch marks from the point of a scribe. In addition precision scribe marks for cutting 'mortise and tenon' joints, peg drilling points and general reference marks, should be regarded as equally important.

PIT SAW MARKS - Marks left from the working of the two man pit saw, usually sloping at 30 to 40 degree angles along the sides of the timbers.

ADZING PITCH MARKS - Dimple shaped cuts where timber has been trimmed into shape with an adze.

CANDLE TAPER BURNS - very attractive 'tear shaped' burn marks left from candles placed against the vertical faces of the timber.

DATES AND INITIALS - Carved or written on the beam. These may or may not be genuine, but they must be left to allow expert inspection. Sometime they confirm dates of rebuilding or extensions.

BEAM PAINTINGS - These are extremely rare and the correct authorities should be notified of the finds. If discovered sandblasting should stop in those areas until they are examined.

There is one other historic element that should be mentioned, and that is evidence of **SMOKE CONTAMINATION** on the beams in the upper portion of the building. This is important evidence, but at the same time is unsightly and is rarely wanted on show in a nicely decorated room. My general advice to the client is to take photographs for future reference. In areas not on show leave it alone, but the remainder should be sandblasted to an attractive finish. That is to say left with some evidence of their history, the darker effect of smoke exposure, but with the heavy soot and tar deposits removed.

DOES IT EFFECT THE SURROUNDING PLASTER?

I have tried all types of masking in the past without success. Due to the twisting and turning of the timbers, straight edges do not work. Masking tapes of all types have been tried, and if the tape is sticky enough to withstand the air pressure, it pulls the plaster from the lath straps when it is removed. So I have settled for no masking at all. With a steady hand and a good eye, sandblasting as carefully as possible along the line where the plaster joins the

timber. This normally results in the plaster being untouched, apart from the paint being peppered in a 1 to 2 inch strip around each timber worked on, leaving a 'halo' effect around the beam. Painting with a good coat of emulsion would usually be all that is required to make good. Where modern composite fibre boards are involved, greater erosion can be expected, and a skim of filler may be required in the effected area, prior to painting. Badly fitted lining paper is likely to need replacing completely. It is very rare indeed that extensive repairs are required, beyond the planned structural repairs, i.e. loose panels of wattle and dorb etc. It must always be kept in mind that if extra pressure is used or prolonged blasting in any one area, the plaster erosion will increase. Again the 'Sample' carried out will be sufficient to establish the results expected.

DOES IT EFFECT THE ELECTRICAL WIRING?

Sandblasting does not effect modern PVC cables, providing the blasting is not prolonged at any one point. Older rubber cables will also resist the process, but there are always fears that the wires may be in a very poor condition anyway. Any fabric covered wires WILL be totally destroyed.

There are two approaches to the problem of wiring. If they are sound they can be left in place, but if they are moved at a later date a black line will be left behind. Alternatively they can be unclipped and repositioned after, then any future alterations are not a problem. I personally prefer the latter. Although where there are vast bundles of wires in place, that are unlikely to be moved, leaving them seems sensible.

WHAT IS THE EFFECT ON BRICKWORK?

There are many finishes achieved on brickwork, depending on;

- The hardness of the brick.
- The hardness and type of pointing used.
- The toughness of the paint to be removed.

Any permutation of these three will give a different result, so the sample is the only answer, and then it's down to personal taste.

Generally speaking if the bricks are only dirty, painted with lime wash, or water based paint, sandblasting is very effective. If the bricks are painted with a modern gloss, vinyl or textured paint, the outcome is normally unsatisfactory.

Inside the building a 'rustic' finish is often very attractive, but I would think seriously about advising 'heavy' abrasive blasting on external walls. The weather face can be completely removed, and the frost will break down the fabric of the brickwork.

I have uncovered a lot of very attractive brickwork and fireplaces. However, on many occasions the bricks are in decay, or the plastic paint needs too much blasting to remove it. In these situations the results of the test were unacceptable, and it is better to advise against continuing.

WHAT ABOUT THE DUST PROBLEM?

At the outset it must be emphasised that this is a very dusty process. Any claims to the contrary, in my opinion, are misleading to say the least. Yes, there are water attachments which give a spray of water around the jet of sand, and this works well on the outsides of buildings, where the wet sand can be washed down at the end of the job. Internally however, any water in the blast action has adverse effects. The wet sand clings to the timber and leaves areas untouched by the stripping action. The water stains the oak with white tide marks, and clearing up the wet sand is a nightmare. A large proportion of the dust that escapes from the working area is not from the sand at all, but from the disturbance of years of dust and debris that is trapped under the floor boards. The air pressure will stir this up and it percolates through the upstairs floorboards to the room above.

I have experimented with extractor fans with little success, except in small confined areas, like inglenooks or small cellars. In this context they only help the situation, and enable a better view of the work. Having discussed this problem with an acquaintance who deals with extraction. He stated that to extract **all** of the dust generated from the sandblasting process, which uses 120 cubic feet of air per minute into an open room of average size. The extractor fan would need to be so powerful that it would probably suck the operator out as well. In addition all of the air removed would have to be filtered and the equipment would be too large to handle. So sensibly every effort must be taken to contain the dust within the working area and prevent it's travel, but at the end of the day it's down to 'fingers crossed' and get the work done as swiftly as possible. So therefore NO GUARANTEE should be given, but every effort must be taken to reduce the problem. Having said all of this, I have worked in many rooms where no dust has escaped at all and the client has wondered what all the fuss was about. In general however, I would prepare them to expect that when the dust settles you can just write your name on the polished surfaces. Anyone who has had building work carried out before, will know that level of dust quite well. I would also advise that fabrics, clothes and computers etc. be moved away to a safe part of the house, then a half hour with the vacuum cleaner will soon deal with it.

WHAT NEEDS TO BE PROTECTED?

Basically I would prefer a completely empty room. This reduces the protection down to covering all windows with polythene sheeting (especially antique glass that is irreplaceable), electrical fittings are placed in plastic bags, and switches and sockets taped over where possible. If carpets are to remain in the room, they must be covered with polythene sheet, but some problems will be experienced if wall beams go down to the floor. The carpets will not be damaged, some sand will get into the pile, but this will vacuum out later.

Any item left in the room which cannot be removed, must be left at the owners risk, but the contractor should cover it as well as possible.

A good contractor will carry out all of the above protection, and clear away all of the sand at the end of the work. The client should expect to be left with a slightly dusty room that requires re-decoration.

HOW MUCH DOES IT COST?

It is impossible to give any figures without viewing the work, as there are many variables to consider. When a detailed estimate is received, it may at first look expensive. It is important however, to assess the overall value of this service. The convenience of speed of the operation is an important factor. I would give the comparison of approximately 3 – 4 weeks hand stripping could comfortably be completed in a day, without the fear of strong chemicals being used. In addition the same process is adaptable to all of the different surfaces that have previously been discussed. Personally I have found that most people prefer the finish to that of hand stripping, which is often incomplete, and requires a dark stain to disguise the paint and filler remaining trapped in the grain. Although I do accept that with the true craftsmen, this is not the general practice.

I would urge anyone obtaining estimates for this type of work not to accept a price simply because it is cheapest. Please be sure that the price adequately covers the level of expertise that you should insist on. It goes without saying that the 'Cowboy' element should be guarded against.

YOU ONLY GET ONE CHANCE WITH THIS METHOD, BE SURE THAT IT IS RIGHT.

WHAT DO WE PUT ON THE TIMBERS AFTERWARDS?

Whatever you decide to put on the timbers to finish them, before you proceed, it would be wise to consider the position regarding woodworm treatment. If it is required now would be the time to spray. The timbers are very dry and absorbent and the treatment will soak well in. If it is not required then you can proceed with one of the following, according to your taste in finishes.

WAXING - This is to apply a coat of liquid wax, which soaks into the grain and dries to a matt finish, it doesn't need further attention and it matures with time. It is important to add a small amount of colour or stain to the wax, to prevent it from drying white on the surface of the beam. Due to the presence of white spirit solvents, the timbers will go very dark until this evaporates. Usually a day or so in the summer, or up to two weeks in the winter, depending on heating.

This is a very effective and natural finish, which blends in to the final decorations without being imposing.

POLISHING - This is the application of a thick layer of wax paste, which is then buffed to a shine. As per French polish on furniture. This is a very lush finish, which to some is too imposing. If the shine is excessive it can produce a false 'varnish' or 'fibreglass' look.

LIMEING - Brushing a lime paste into the grain, then buffing the excess off leaving white highlights in the grain. This is a very individual taste and is not as common as the first two methods.

BLEACHING – Applying a bleach solution to 'Fade' the brown oak colour, thus leaving a 'Scrubbed' look to the grain. Again this is an alternative chosen by a few enthusiasts.

LEAVE THEM – Some clients are happy to just leave them as they are after sandblasting, to allow them to mature with the effects of smoke and time. Although when the decorating is finished some timbers can look a little dry and lacking nourishment.

One product that has always been associated with the treatment of oak is 'Linseed Oil'. I would NOT recommend this on period timbers. It makes them go dark, as does the white spirit, but unlike the spirit it never evaporates out again, and you are left with a dark sticky beam. Likewise I would NOT recommend 'Varnish or Sealers', the timbers must be left to breathe. One day you may wish to apply wax then the varnish will prevent you.

IN CONCLUSION

The foregoing pages, I hope, will at last be of some assistance in dispelling some of the fears regarding Sandblasting. I hope also that I have given a balanced view of the risk areas that should be watched very carefully. However, I am adamant that this is a 'craft' that is equal to others within the world of the 'Restoration Of Period Buildings' and past PREJUDICE AND DOGMA should not be placed before proof of competence and ability.