

## TIMBER TREATMENT

A warning about the defrassing of timbers

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The term "defrassing" describes the removal of material from timber—usually its surface layer—which has been so degraded by beetle attack that it is no longer structurally useful. This honeycombed or powdered residue is known as "frass".

Defrassing commonly forms part of timber treatment and repair operations and its purposes may be threefold:—

- (a) To evaluate how much real strength and physical integrity is left in a timber reduced by attack.
- (b) To enable chemical treatment to reach underlying sections which retain strength but harbour live infestation.
- (c) In repair—to mate new to old or reinforce upon relatively sound hard surfaces.

Whilst in principle these are valid reasons for executing defrassing, the increasing tendency to adopt it as "standard practice", in total, and for all cases, sometimes brings serious dangers of doing more harm than good. The removal of frass is normally done by cutting or scraping. It is thus a destructive operation which can radically alter the shape and appearance of timbers. In cases where these were designed and fashioned to be seen—for example, in open floors and roofs—and especially where timbers are decoratively chamfered, moulded or carved, defrassing can thus result in serious mutilation and loss of historically valuable features. Painted decoration is especially precious and vulnerable and important clues to the early history of a building, such as smoke blaking, external weathering and carpenter's marks are fragile evidence, easily lost.

Unfortunately, the shaped or embellished corners of beam or joist sections are the most likely parts of a timber to have been made frassy. The outer sapwood of a tree is considerably more vulnerable and palatable to wood boring beetles than the heartwood and mediaeval conversion methods frequently accepted sapwood at the angles, to obtain the largest possible squared timber from a round log. It is possible that the cham-



*Defrassing in progress.*

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fering and moulding of angles derived, at least partly, from a practical aim of removing this vulnerable material. Nevertheless, examples are frequently met of embellishment actually worked within retained sapwood, and these are especially at risk in over zealous defrassing. When dealing with cases where valuable surfaces are frassy, but sufficiently cohesive to retain their form, every consideration should be given to means of leaving them alone and achieving adequate treatment or repair by other paths of attack. Each case will need to be considered individually, but the following principles are universal:—

(a) Frass is not of itself harmful. It may be harbouring beetles in the grub or chrysalis state, but because of its honeycombed structure, these should be readily controlled by careful low pressure coarse surface spray, brush flooding or syringe injection. If compacted boredust is clogging tunnel and gallery entrances, this will firstly need to be carefully loosened with a bradawl and thorough vacuum cleaning will

then remove the content of free dust.

- (b) The most structurally dangerous incidence of wood borers is usually deep within the heart of timber—often at its central core cavity and in the end grain at exposed bearings and joints. Defrassing and applications by spray or brush to the sides of timbers cannot do very much permanent good. Stray emergent beetles may be killed for a few years, but in English oak, for example, surface treatment will have little or no penetrative effect to beetle activity in the heart.
- (c) The best aim of insecticidal treatment is to get the poison into the cavities and crevices where the grubs are at work and to the better paths for penetration presented by end grain exposure. This means selective and thorough spray treatment into accessible joints, holes, and fissures, and drilling downwards to hidden cavities into which insecticide can be gravity fed.
- (d) From the foregoing, it follows that

wherever possible, access should be obtained to the top surfaces of timbers: eg by lifting boards above floor beams and joists and by selective roof stripping in the case of valuable and heavily attacked open roof timbers. This will often give opportunities for clearing out and cleaning floor and ceiling voids where accumulations of debris do much to encourage the beetle to thrive. Defrassing of concealed surfaces will then, of course, be prudent.

- (e) In cases where opening up is difficult or impossible, the use of insecticidal smokes can be considered. In suitable cases, wood borer attacks can be successfully controlled by regular smoke treatment, but great care is needed in its use and this should only be undertaken with specialist advice.
- (f) Above all, the aim should be to remedy the conditions which have encouraged the attack to take hold and flourish; ie lack of ventilation, debris, and a modicum of damp. The creating of dry, clean and ventilated conditions is the most important single factor in controlling beetle infestation.

For assessment of the structural condition of timbers, total defrassing is undoubtedly the quickest way of obtaining an overall picture of their real strength. Visually however, the result may be to transform a finely squared and fashioned structure into a framework of rough logs and poles; so that the cure becomes infinitely more damaging than the disease. The care of historically important timbers demands a fully informed, considered, and controlled approach. Preliminary checks of sizes relative to loading will often show significant "factors of safety" in the cross sections. Medieval oak especially was often used in scantlings several times stronger than we can now calculate that it needed to be, so that considerable loss through beetle attack will still be tolerable. This factor should always be considered early and may save much unnecessary work, expense and loss.

When deeper investigation does prove to be required, access from above, allowing cleaning off and inspection of concealed surfaces, will always be informative; and this is usually the best route to a view of bearings and joists. If there are doubts about the inner soundness of timbers, they can be systematically drilled from above to test for both the degree and extent of hardness and the presence of hidden cavities.

In cases where it is necessary to know the contour of sound timber overlaid with frass this can be determined by



*A once fine main post resembles a tree trunk after all frassy timber has been cut away.*



*The result of defrassing a main post which was originally covered with C16 painted decoration. This decoration once formed part of a scheme covering all wall surfaces—plaster and timber.*



*Defrassed fine square section medieval floor joists now resemble poor quality 'pole' construction.*

careful and systematic probing. Attempts to drill through frass usually result in ragged holes, but the use of a sharp thin spike will give the required results and cause minimum damage.

In repairing frassy but valuable timbers, a whole armoury of techniques of concealed repair and reinforcement is available. Many of those described in various SPAB publications are designed to preserve the valuable outer shell of timbers and will solve most problems where this is the need.

With care and ingenuity, much can be saved that otherwise may be thoughtlessly or mistakenly lost. The defrassing of timbers is a perfectly valid and sensible operation in many cases, but it must be controlled with full regard to retaining the historical validity of timber structure; or the work of which it forms part can defeat its own ends.

#### *Useful references*

- 'Repair of Ancient Buildings' by A. R. Powys.
- Technical Pamphlet No 2 "Strengthening Timber Floors" by J. E. M. Macgregor.
- SPAB News
- Vol 1 No 4 p62
- Vol 3 No 3 p29
- Vol 3 No 4 p54
- Vol 4 No 1 p7
- Vol 4 No 2 p23

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