

Festool, Wendlingen (Germany) – May 2022

Press release for the technical press

PAINT special issue: Sanding how-to

Infoline for reader and journalists

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Sanding how-to in practice

Tips for using different tool types, accessories and abrasives and for ensuring good lighting conditions while sanding

Over the last few years, renovating old houses and apartments has been in vogue. Most of these buildings date back to the period between 1960 and 1980, meaning there is a lot of work to do – every surface needs to be renovated and the related subsurfaces indoors must be prepared.

Sanding is required when renovating and restoring old structures – in all possible configurations. It's not uncommon for certain parts of the building to remain occupied during a renovation, making clean work with low volumes of generated dust all the more important. Due to the increasing demands that customers place – with regard to the quality, durability and sustainability of the surface and materials – the requirements for painting businesses are also increasing. Ultimately, a surface is only ever as good as the preparation of the subsurface. To meet these demands, the ideal subsurface preparation and professional sanding are gaining increasing importance. In this article, sanding expert Philipp Stahl (master painter and application engineer at Festool) explains how this is interpreted in practice: "With all sanding work, a harmonised sanding system is key to quality and working progress". Painting businesses usually encounter these sanding requirements: Sanding off unsound old coats, or those that are incompatible with new coats, adapting and smoothing surfaces and removing unevenness,

as well as intermediate sanding of layers of repair compound. A harmonised sanding system helps to complete these tasks to a suitable standard. It consists of the ideal abrasive paper for the sanding requirement in question, the right sanding pad and the compatible sander in combination with the optimum dust extraction system. With sanding systems that can be combined in a variety of ways, everyday work becomes more effective, delivers the required result more quickly and is also more healthy – for employees of the painting business as well as for the customer, who often remains living in a separate area of the building during the painting work. For every requirement there is an individual solution. You just have to know the best way to use it.

BOX 1: Large-scale filler work

(see at end of text and images Festool-Sanding-Knowhow-01.jpg to Festool-Sanding-Knowhow-05.jpg)

Many sanders – which one to choose?

"There is no single, universal sander – the same is true when renovating. It always depends on the main requirements to be met," explains Philipp Stahl. For example, is a high material removal capacity required, or a particularly fine sanding finish? Or do large wall and ceiling surfaces have to be sanded right into the smallest corners? There are specific sanders for every task: Long-reach sanders in various configurations, numerous eccentric sanders with different sanding strokes, rotary sanders with eccentric motion and different sanding disc diameters, as well as orbital sanders. "Every painting business works differently. This makes it difficult to recommend a specific one to choose. In general, I would give the following recommendation: For painting businesses that often perform drywall construction work, it is worth buying a long-reach sander. For smaller surfaces on walls and ceilings such as in guest toilets or in stairwells, I recommend the handy ETS EC 150/5 eccentric sander. For renovating windows with damaged old paintwork around the weatherboard, it is worth using a Rotex RO 90 geared eccentric sander. It has four different functions: Coarse and fine sanding, polishing and triangular sanding. The RUTSCHER RTS or DTS orbital sander is suitable for corners and smaller surfaces. The RTSC, DTSC or ETSC cordless compact sanders are extremely practical for jobs performed outdoors or on scaffolding – where there is no power source. And if there is no power

source for corded sanders, the new SYS-PowerStation is there to help," explains Philipp Stahl.

Images: Festool-Sanding-Knowhow-10.jpg and Festool-Sanding-Knowhow-24.jpg

BOX 2 Sanding basics: Sanding motions 101

(page at end of text with four images 06–09)

Woodwork: Proper door preparation

Images: Festool-Sanding-Knowhow-14.jpg and Festool-Sanding-Knowhow-15.jpg

If historical doors which are worth preserving need to be prepared in order to maintain the special character of the house, meticulous refurbishment is important in order to preserve the design of the door for many years to come. Every door is one of a kind. Is the door in question an interior or an exterior door, an entrance that shapes the building's external appearance? If so, it's all the more important to think about the correct approach in advance. This often poses the question as to how much of the original material can be preserved. This is not only true of the doors, but of course of the frames as well. The doors are first examined, meaning old coats are checked and damaged areas in the wood are determined. The existing paint layers can be sanded smoothly and reliably with the ETS EC 150/5 or ETS EC 125 eccentric sander, to name a couple of tool recommendations. With the right speed, loose pieces are removed without too much pressure and intact surfaces are roughened. "We recommend that you use abrasives with a grit from P180 for water-based paint, and a grit from P150 for alkyd resin paint for lightly sanding the surface," explains application engineer Philipp Stahl.

Hard-to-reach areas on profile grooves and transitions can be resanded using an especially adaptable abrasive sponge. After lightly sanding the old paint, you can fill small holes and damaged areas. Of course, dust extraction is a must when lightly sanding. After sanding, you can vacuum the sanded surfaces thoroughly with a mobile dust extractor, and, if necessary, you can clean up with an anti-dust and tack cloth. For intermediate sanding with the ETS EC, we recommended using GRANAT abrasives with a grit of P240 to P500. The speed should be reduced to avoid sanding through or heating up the primed surface. Hard-to-reach areas on profile grooves and transitions can be resanded using a manual abrasive. Renewed splendour for old windows. Renovating old window frames and casements made from wood to a professional standard is a challenging task. This is true in the conservation

of cultural heritage as well as in the modern and sustainable handling of existing materials such as wood. Meticulous refurbishment with the appropriate expertise can make a window construction usable for many more years.

Perfect lighting conditions: And underestimated issue during sanding

During sanding in particular, the importance of a well-lit surface is often underestimated. But light plays an essential part in the quality of your work. Professionals achieve the best results in well-lit working areas. That is why Festool has identified this requirement some years ago and uses modern LED technology in its working lights, namely the SYSLITE DUO working light and the SYSLITE STL 450 surface control light. Their numerous advantages make them stand out from conventional lights. The SYSLITE DUO working light, for example, combines an illuminating power of 8000 lumen with a daylight-like colour of 5000 Kelvin. Thanks to specially arranged LEDs, it achieves homogeneous illumination across 180° and also radiates evenly across large workspaces. Its robust design makes it an ideal light source for all trades, both on and off the construction site. In particularly tight spaces, the KAL II SYSLITE working light ensures optimum illumination.

Images: Festool-Sanding-Knowhow-19.jpg to Festool-Sanding-Knowhow-21.jpg

You can find more information at **www.festool.co.uk**, on **www.festool.co.uk/knowledge/refurbishing-furniture** and on the Youtube channel Festool Quick Guides: **<https://www.youtube.com/c/FestoolQuickGuides>**

Total approx. 7845 characters (including spaces)

Image source: Festool GmbH

(BOX 1)**Large-scale filler work**

Surfaces and various repairs carried out at the time these houses were built, between the 1960s and the 1980s, can be treated most time-efficiently using a long-reach sander. Customers' requirements for the surface finish quality of walls and ceilings are growing constantly and, as a result, perfect sanding results are needed. At the same time, the fillers used are becoming softer, thereby making such high-quality surface finishes harder to achieve. There are often poor lighting conditions when carrying out renovations and restorations. It is hard to identify unevenness and sanding marks may be produced; these may need to be subsequently reworked. The LED light ring built around the sanding pad on the new Planex LH 2 long-reach sander provides perfect illumination with individually adjustable brightness in a 50 cm radius around the sanding head. This avoids the need for inconvenient, time-consuming and costly reworking by ensuring a perfect sanding result first time. Sanding is made significantly easier by the eccentric sanding motion. This allows outstanding scratch-free surfaces to be created in the shortest time frame – with no sanding errors or scratch marks. Adjustable suction ensures ergonomic working. This means that it can hold its own weight when sanding walls and ceilings, relieving the weight from arms and backs – especially during lengthy tasks. In addition, the PLANEX can be individually adapted to the working height because its working length can be extended to up to 2.1 m using two guide extensions. This means that the machine can be used to sand particularly high walls and ceilings. The T-handle allows for a longer range. High volumes of hazardous sanding dust are generated when sanding plasterboard and drywall filler, among others. Combined with the CTM 36 E AC PLANEX mobile dust extractor and Granat abrasive, Festool offers a coordinated system, which ensures a perfect surface finish quality and a healthy low-dust working environment. The new hole pattern in the sanding pad and abrasive ensure an ideal sanding performance with full-surface extraction. With the new Planex, Festool has enabled full app connectivity. Numerous extra features can be accessed in conjunction with the free Work App. See www.festool.co.uk for more information

Image: Festool-Sanding-Knowhow-01.jpg to Festool-Sanding-Knowhow-05.jpg

(BOX 2)**Sanding basics – sanding motions 101**

When sanding, choosing the right tool is crucial. Experts often talk about strokes, pad hardness and the right abrasive. They often fail to mention that one thing matters above all else: The right sanding motion. Depending on the quality of the surface and the result you want to achieve, there are five different sanding motions to choose from for coarse and fine sanding. It's also true that the longer the sanding stroke, the more material is removed. A short sanding stroke of three millimetres, for example, is ideal for fine sanding; sanding strokes of between five and seven millimetres remove a large amount of material for coarse sanding.

Eccentric: The sanding motion is an oscillating motion, which combines overlapping linear and circular motions. Ideal when the quality of the sanding finish is not so important (if a top-coat layer is to be applied afterwards). Note: The delta sander also has an oscillating motion; it is ideal for removing material on small surfaces with angles, corners and edges. Example machine: DTS 400 delta sander *Image: Festool-Sanding-Knowhow-06.jpg*

Eccentric rotation: This is a combination of oscillating and rotary motion. Ideal for coarse sanding and paint removal as well as intermediate and fine sanding. Allows for a surface that is virtually free from any circular or ridged sanding marks. Note: When sanding using an eccentric rotary motion, it makes no difference whether the machine is moved with or against the grain; particular care must be taken when sanding areas where longitudinal and transverse wooden surfaces meet. Example machine: ETS EC 150 *Image: Festool-Sanding-Knowhow-07.jpg*

Forced eccentric rotation: This is a sanding motion with forced eccentric rotation as a result of connection to a gear unit. The gear unit considerably increases the material removal rate. Ideal for coarse sanding and for quickly removing old paint layers that are not viable. The result: Quick removal of large amounts of weathered layers of paint and varnish, without a high risk of sanding errors. Forced eccentric rotation can also be used for polishing. Example machine: ROTEX RO 90

Image: Festool-Sanding-Knowhow-08.jpg

Rotation: The last type is pure rotary motion. This is used wherever a high level of material removal is needed as quickly as possible (among other cases, when stripping large areas of paint). It is, however, important to note that powerful rotary sanders are not forgiving of any user errors. Unintentionally deep sanding marks can be produced when working on workpieces that need to be completely level. Example machine: RAS 180

Image: Festool-Sanding-Knowhow-09.jpg

(BOX 3)**Newly developed: The long-reach sander**

The newly developed PLANEX LHS 2 225 EQI long-reach sander is ideal for sanding walls and ceilings. The circumferential LED light ring highlights unevenness when sanding, thereby preventing the need for costly reworking. The laborious installation and transportation of light sources is therefore also no longer necessary. The eccentric sanding motion ensures a premium surface quality – without any sanding marks. The focus of the product development team was to ensure ergonomic work on walls and ceilings: The new long-reach sander with adjustable suction, variable working length and a clever T-handle. The result: Comfortable handling for sanding without fatigue – even during lengthy tasks.

Image: Festool-Sanding-Knowhow-13.jpg

(BOX 4)**Checklist: Everything on hand for sanding**

- Which sanding applications are to be completed?
- Do I have the right sanding tools to hand?
- Which sanding pad do I need?
- Which abrasive and abrasive qualities are required?
- Which materials are to be sanded?
- Do we have the right mobile dust extractor to hand?
- Do we need several/different dust collectors?
- Which cordless tools should be on hand?
- Do we have the right battery packs?
- What are the light conditions like in the building and do we need working lights?

Images: Festool-Sanding-Knowhow-16.jpg and Festool-Sanding-Knowhow-17.jpg

(BOX 5)**What customers require when painters sand: Dust-free work**

The working environment should remain **free of dust** as far as possible, not just for the sake of the customer, but also to protect the **health of one's own employees**. We have a few tips: The right abrasive paper is essential for **perfect sanding results**, especially when sanding completely filled walls and ceilings of the highest surface finish class (Q3 and Q4). If you separate occupied areas and surfaces to be worked on using **foil covers or dust protection walls**, you will keep a lot of dust out. a) Abrasive nets have an open mesh structure that allows materials to be **comprehensively extracted**. b) When carrying out comprehensive filling work, it is worth **using a pre-separator** that already isolates the majority of the sanding dust before the dust can reach the dust collector. c) The dust collectors fall into various dust classes. The use of **dust extractors from dust class M with AC function** (AC = autoclean – automatic main filter cleaning system) is recommended.

Image: Festool-Sanding-Knowhow-22.jpg

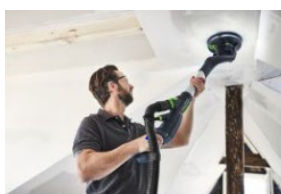
(BOX 6)

Not all sanding pads are the same

Besides the abrasive, the sanding pad plays an important role as a connecting element in sanding. Manufacturers make different versions available depending on the sanding task. Festool offers a hard version (hardness grade H-HT) with high edge resistance for flat surfaces and narrow edges, a soft version for universal use on flat and curved surfaces (hardness grade W-HT) and an ultra-soft, flexible version for extreme bends and curves (hardness grade SW); in addition, the range includes a pad for sanding slats and louvres, a pad for polishing accessories and an interface pad for sanding work on curved parts and fine sanding using the eccentric sander and a guard (available as an accessory) for the sanding pad and workpiece.

Image: Festool-Sanding-Knowhow-23.jpg

Image preview



Images for BOX 1

Image: Festool-Sanding-Knowhow-01.jpg

Efficient and healthy sanding is increasingly important – here, with the PLANEX LHS 2 long-reach sander



Image: Festool-Sanding-Knowhow-02.jpg

Thanks to its adjustable suction, the new PLANEX supports its own weight when sanding walls and ceilings



Image: Festool-Sanding-Knowhow-03.jpg

LED light ring makes any unevenness within a 50 cm radius around the sanding head visible



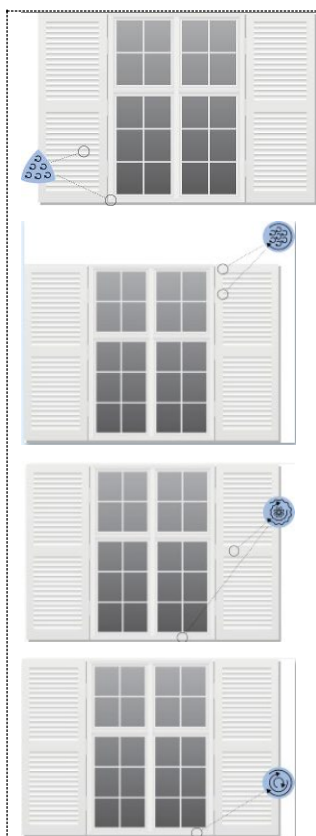
Image: Festool-Sanding-Knowhow-04.jpg

Easy switching thanks to adjustable suction on walls and ceilings



Image: Festool-Sanding-Knowhow-05.jpg

The LED light ring on the Planex 2 creates excellent lighting conditions – even in dark corners.



Images for BOX 2:
Sanding basics
Sanding motions 101

Image: Festool-Sanding-Knowhow-06.jpg
 Eccentric sanding motion – example machine DTS 400 delta sander

Image: Festool-Sanding-Knowhow-07.jpg
 Eccentric rotation – example machine ETS EC 150

Image: Festool-Sanding-Knowhow-08.jpg
 Forced eccentric rotation – example machine ROTEX RO 90 geared eccentric sander

Image: Festool-Sanding-Knowhow-09.jpg
 Rotation – example machine RAS 180

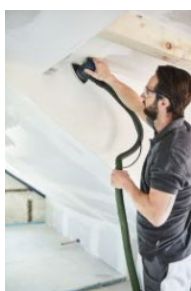


Image: Festool-Sanding-Knowhow-10.jpg
 You can reach easily into all corners with a DTS delta sander (also available in a cordless version with the DTSC)



Image: Festool-Sanding-Knowhow-11.jpg
 Preparation of historic doors on-site is common practice.

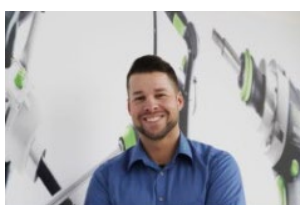


Image: Festool-Sanding-Knowhow-12.jpg
 Master painter and application engineer at Festool

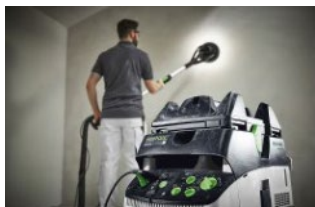


Image for BOX 3: Newly developed

Image: Festool-Sanding-Knowhow-13.jpg

The PLANEX long-reach sander

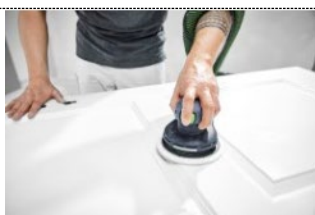


Image: Festool-Sanding-Knowhow-14.jpg

The ETS EC 150 eccentric sander and GRANAT abrasive with grit P240 to P500 is suitable for intermediate sanding



Image: Festool-Sanding-Knowhow-15.jpg

If necessary, hard-to-reach areas on profile grooves and transitions can be resanded using the extremely adaptable abrasive sponge



Images for BOX 4: Checklist

Image: Festool-Sanding-Knowhow-16.jpg

Clean and clearly organised: In the abrasives Systainer



Image: Festool-Sanding-Knowhow-17.jpg

Different grits can be neatly stored in the abrasives Systainer so that they are quickly ready for use.



Image: Festool-Sanding-Knowhow-18.jpg

ROTEX RO 90: Optimal for a high material removal capacity on small surfaces with angles, corners and edges



Image: Festool-Sanding-Knowhow-19.jpg

The SYSLITE DUO working light ensures excellent lighting conditions with an illuminating power of 8000 lumen and a daylight-like colour of 5000 Kelvin.



Image: Festool-Sanding-Knowhow-20.jpg

Surfaces can be easily evaluated using a surface control light (STL 450)



Image: Festool-Sanding-Knowhow-21.jpg

The SYSLITE KAL working light is very flexible in use – with a particularly wide scatter angle of 170°.



Image for BOX 5: INFO

Image: Festool-Sanding-Knowhow-22.jpg

The CT-VA-20 pre-separator handles large volumes of dust: Efficient, simple and reliable.



Image for BOX 6: INFO

Image: Festool-Sanding-Knowhow-23.jpg

Not all sanding pads are the same



Image: Festool-Sanding-Knowhow-24.jpg

If there is no power source for corded sanders, the new SYS-PowerStation is there to help.

Image source: Festool GmbH