Albi Clad TF

Fireproofing Application Manual & Field Guide



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ALBI CLAD TF

FIREPROOFING APPLICATION MANUAL

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INTRODUCTION

ALBI CLAD TF

Applicator Training

Throughout the years, Albi has earned a fine reputation for our dependable, high quality fireproofing systems. Providing maximum protection with minimum thickness, Albi fireproofing has demonstrated a unique ability to withstand abuse, impact, vibration and adverse environmental conditions, while still continuing its outstanding performance record and aesthetic properties.

As an Albi applicator, you are critical to achieving the specified aesthetic effect, the long-term durability of the applied product, and ultimately the performance of the fireproofing should there be a fire. It is vital that you and everyone in your company apply the product in accordance with UL tests and in compliance with our instructions.

Albi Clad TF is a smooth, hard fireproofing for structural steel that will remain exposed in interior locations. Architects and building owners specify Albi Clad TF when they want a clean, attractive finish that maintains the contours of the structural steel. Customer satisfaction for both your firm and Albi depends on a competent and careful application with a pleasing aesthetic finish.

This manual is designed to help you understand the Albi Clad TF product, our equipment guidelines and our application methods. The manual is provided as part of our factory training. In addition, it should be used by Albi approved contractors to make sure that all personnel who will be applying the product are fully trained in proper application methods.

ALBI CLAD TF PRODUCT DESCRIPTION

Albi Clad TF

Albi Clad TF is formulated for interior application on structural steel where the fireproofing material is to be left exposed. It provides a hard, smooth-surfaced, thin architectural coating and withstands heavy service. A neat, attractive finished appearance is very important when applying this particular fireproofing product.

FORMULATION: Albi Clad TF is a proprietary water based formulation consisting of acrylic-based resins, binders, and intumescent agents. It is factory formulated for maximum quality control, and is shipped in 55-gallon (US) drums or 5-gallon (US) pails. Albi Clad TF contains NO asbestos and it meets the fire test criteria of ASTM E84, ASTM E119 and UL 263. It does not require a topcoat for performance, though it may be painted with a compatible product if desired.

APPLICATION: Albi Clad TF is applied directly from the shipping containers using heavy-duty airless equipment. It requires no field additives. It is a thixotropic material with a very heavy initial viscosity. It must be thoroughly mechanically mixed in the field, which will transform the texture to smooth, creamy and sprayable. Albi Clad TF is available in both spray and trowel grades to suit the desired end use requirements.

WATER-BASED: This product is water-based and must be protected from freezing during transport, storage, and application. Observe standard professional practices for the application of water-based coatings. Provide adequate ventilation.

PRIMERS: Since Albi Clad TF is not formulated to function as a surface sealer or moisture barrier, a compatible primer is required for protection against corrosion of steel substrates. Albi manufactures two appropriate primers. Both primers must be allowed to cure for at least 72 hours prior to the application of Albi Clad TF.

Albi 487 S – Alkyd Primer A phenolic modified alkyd primer recommended for use with Albi Clad TF under most conditions.

Albi 490 W – Acrylic Primer A water-borne acrylic based primer recommended for use with Albi Clad TF when interior application conditions require a water-based primer. For complete details see the product data sheets for these primers.

Fiberglass Ribbon

Certain UL listings require fiberglass ribbon for flange edge protection. This ribbon comes in 150-foot rolls, 5 ½" and 12" wide, 20 x 20 mesh with a .004' fabric thickness. Custom widths are also available.

EQUIPMENT RECOMMENDATIONS

Why Albi Recommends Specific Equipment

Albi Clad TF is a heavy-bodied material that requires heavy-duty airless spray equipment for a smooth and efficient application. There are dozens of pumps, spray guns and tips on the market. Albi has extensively evaluated a number (but not all) of those pumps etc. and we have come up with a list of certain equipment that works very well. Some pumps definitely work better than others at moving this heavy material, and the correct spray gun and tip are essential for producing a good aesthetic finish.

With the right pump and the right tip an experienced applicator can apply as much 80 to 100 mil (or more) in one coat with multiple passes. By contrast, use of inappropriate equipment may limit your production severely and/or produce an unacceptable finish.

We urge you to obtain and use the equipment we recommend here. If you elect to use other equipment than that which we recommend, you may be inviting problems. Furthermore, Albi can only give you the best technical support on the equipment with which we are thoroughly familiar.

AIRLESS SPRAY EQUIPMENT

PUMPS

These are the pumps recommended by Albi for application of Albi Clad TF. Any pumps used must be rated for a minimum material delivery of 1.25 gallons per minute.

Brand / Model

Speedflo-Titan Power Twin 8900 Gas or Electric Operated

Graco - Gmax 5900 Gas Operated

Graco – Gmax 7900 Gas Operated

Graco - Gmax 10000 Gas Operated

HOSES

Material lines for airless application must be rated at a minimum 3000 + psi working pressure with a 3/8" inside diameter. Hose length should not exceed 100 feet without consulting Albi Manufacturing.

SPRAY GUNS

We recommend the following airless spray guns.

Brand / Model

Binks 1M Airless Graco Contractors Airless Titan SGX-20 Airless Wagner G-10N Airless

SPRAY TIPS

We recommend a range of tip sizes from .419-.423 & .519-.523. You should always have a range of tip sizes at a job site since steel sizes, hose length, vertical lift and job site conditions all impact spray patterns. It is recommended to use tips without a diffuser bar. (Note: We do not recommend using tips designated as .3--.)

Brand / Model

ASM Zip Tips Graco Airless Tips Titan Airless Tips

ADDITIONAL EQUIPMENT

MIXING EQUIPMENT

Mechanical mixing of Albi Clad TF is required to assure uniform blending and proper material viscosity. For best results use a simple ½ inch drive electric drill, with a paddle sized to mix either a 55 gal drum or a 5 gallon pail.

SPARE PARTS AND ACCESSORIES

Have the following items on hand to limit possible down time expenses.

- 1. Long handled screwdrivers, wrenches, hose clamps, etc to allow for quick maintenance checks and repairs in the field.
- 2. Extra 50 foot section of material hose
- 3. Supply of empty 5-gallon pails to allow for cleaning of pump and material hose with water flushing
- 4. Spare parts kit as recommended by pump manufacturer
- 5. Spare material and air hose connectors, including swivel end connectors
- 6. Extra spray guns, spray tips, holders.

MISCELLANEOUS EQUIPMENT

Have the following items available on the job:

- 1. Masking paper and tape as well as non-absorbent masking cloths to prevent or minimize overspray on finished surfaces or equipment.
- 2. Movable scaffolding as required.
- 3. Barrel or drum handling equipment. (A 55-gallon drum of Albi Clad TF weighs approximately 600 pounds.)
- 4. OSHA approved Safety Equipment.
- 5. Thickness measuring gauges to assure adequate wet and dry film thicknesses.
- 6. Fiberglass ribbon (as required for specific applications).
- 7. Supply of good quality foam paint rollers and tapered polyester brushes in 3" or 4" widths.
- 8. Trowel and protective gloves for patch up work and for trowelling or palming material into areas difficult to reach with spray application equipment.

SURFACE PREPARATION

The surface to receive Albi Clad TF must be properly prepared in accordance with good painting practice. The steel must be clean of all residual oil, moisture, dust, frost or other contaminants that may have formed. In areas where spot rusting has occurred, be sure all loose rust, scale, etc is removed. Spot prime all bare steel with a compatible primer.

PRIMERS

To provide protection against corrosion, all steel must be primed with a proven compatible primer. Albi manufactures two primers for use with Albi Clad TF. Albi 487S is a phenolic modified alkyd primer, and Albi 490W is a rust inhibitive acrylic primer. After using either of these Albi primers, allow at least 72 hours for thorough drying and curing before applying the Albi Clad TF.

If using a primer other than these Albi products, you need to determine compatibility before beginning the job. Since Albi Clad TF is a water-based product it is compatible with many but not all primers. Do not assume compatibility. You can call our laboratory to determine the compatibility of a particular primer.

Incompatible primer must be removed by acceptable techniques such as commercial blast cleaning as outlined in the Steel Structure Painting Council (SSPC) guidelines. Then an acceptable primer must be applied.

PREPARING TO APPLY ALBI CLAD TF

Mixing the Material

Albi Clad TF is a single-component, factory-formulated product that requires no additives. However, it must be mixed thoroughly with mechanical equipment to a smooth creamy consistency.

When the material is shipped, it has a thick consistency. It is generally uniform, not separated, and may appear ready to apply. It is NOT ready. Albi Clad TF is a thixotropic material that undergoes a transformation when vigorously mixed. With mechanical mixing the material becomes smooth, flowable, and ready to spray. Once mixed however, Albi Clad does not require continuous mixing during the spray application. It is recommended to remix the material at the start of each day just prior to spraying.

Important: Mix the Albi Clad TF to a Smooth, Creamy Consistency

Airless Equipment Safety Warning - Injection Hazards

Airless Equipment should ONLY be used by trained and experienced personnel. All persons working with, or around airless equipment, must be aware of injection hazards.

AIRLESS SPRAY APPLICATION

Setting Up

Connect the material line to gun. Adjust the pump pressure to the recommended range and choose an airless tip size, between .417 to .423 and .519 to .523. Increase or decrease pump pressure to achieve an even spray pattern. It is always best to spray at the lowest achievable pressure. If spray tip is constantly clogging, either raise the pump pressure in five-pound increments, or change to the next larger size tip. Tip extensions with swivel ends can be used to reach inaccessible areas.

Beginning to Spray

Make sure the Albi Clad TF is mixed to a smooth, creamy consistency just prior to starting the spray application. Hold the spray gun a comfortable distance from the work. The trigger on the gun can be pulled continuously or intermittently to allow an even application of the material.

Building the Required Film Thickness

The film thickness can be built up to 60 - 100 mils per coat. This is best achieved through multiple passes to produce an even application. Higher film builds per coat tend to impair the product finish. For the smoothest final appearance it is often best to limit each coat to about 60 mils. However, with experience, you may be able to lay down 80 to 100 mils in an acceptable finish.

Thickness applied during each pass depends on the skill of the applicator, weather conditions, and of course using the right equipment. Excess film builds can result in mudcracking, sagging, or material runs. These can not be easily repaired, and if they are left untreated, they produce an unacceptable finished appearance.

As a general guide, wet film thicknesses can be built up in one day to 300 mils. This is best achieved in several coats of 60 - 100 mils each. Allow enough time between each coat to achieve skin drying. Do not exceed 300 mils total thickness in one day. Amounts in excess of 300 mils in a day will increase the hazard of material sagging. When application calls for Albi Clad TF thickness greater than 300 mils, allow the initial applied coats to dry overnight.

Equipment Operation Hints

If the pump fails to operate correctly, check the following points:

- 1. Check material pressure gauge to make sure it is operable.
- 2. Check material level in Albi Clad drum to be sure sufficient material is covering the inlet material orifice and no cavitation is occurring.
- 3. Check material inlet for possible malfunction or clogs.
- 4. Make sure all personnel involved in the use of the equipment are familiar with its operation and understand the manufacturer's recommendations for trouble shooting.

Applying the Fiberglass Ribbon if Needed

The fiberglass ribbon is typically installed at a point about half-way through the final film thickness. Prior to applying the mesh, allow the previous coats of TF to dry overnight. Spray a light coat of TF (approximately 30 mils), then install the mesh. It is easiest to work with lengths of 3-6 feet. Roll the mesh flat, working out any air bubbles. Then apply the remainder of the TF.

SMALL JOBS or PATCH AREAS

For very small jobs, not allowing or justifying the use of airless spray equipment, Albi Clad TF can be applied as follows:

- 1. Order trowel grade Albi Clad TF.
- 2. Apply by trowel or palming method. Wet trowel thoroughly with water and apply material. Do not work the Albi Clad TF too much, as it will tend to dislodge itself from the surface to which it is being applied.
- 3. To patch damaged area, first remove any loose particles. Then apply Albi Clad TF with sheetrock broad knife.

ALBI CLAD TF - FINISHED APPEARANCE

Albi Clad TF serves both as a functional fireproofing material and the architectural finish. It can and should be applied to provide a neat acceptable finished appearance. Albi Clad TF should be applied in uniform thickness, free from globs, sags, and craters. Careless, sloppy workmanship always results in costly additional work and customer dissatisfaction.

The final appearance of the Albi Clad TF is directly dependent on the initial and subsequent spray coats. Build up the thickness slowly and uniformly through the use of successive passes. (Building up the thickness too rapidly causes mudcracks, sagging and sliding.) Allow each coat to skin dry before applying the next coat. Do not exceed 300 mil of wet film thickness in one day.

If errors in application have caused the material to glob, slide or sag, you should immediately remove that material and reapply the Albi Clad.

Smoothing the Surface

Airless spray equipment, properly used, delivers the required finish appearance. You can smooth any surface irregularities and especially flange edges by lightly rolling with a foam roller or brush immediately after spraying. Keep the roller or brush wet to avoid pulling the applied material off the steel.

Importance of Sufficient Film Thickness

The film thicknesses specified for a fireproofing job vary depending on the size of the steel and the hourly ratings required. The fire tests performed by Underwriters Laboratories (UL) result in listings of the minimum average dry film thickness. It is vital that the application meet these thicknesses as specified.

Measuring the Film Thickness

UL lists the dry film thickness for the specified fire ratings. This material will shrink between 15 to 25%, so the wet film thickness needs to be greater than the required dry film. (Although Albi Clad TF is 70% solids it doesn't shrink a full 30% because there are relatively large particles and glass flakes in it which create microscopic voids). It is important to continually check the wet film thickness during the application to ensure that sufficient but not excess material is being applied.

FINISHING UP

Down Time and Clean Up

When stopping work for a break, immerse the tip of the gun in water and cover the open drum to prevent the material from hardening. This permits quick resumption of work.

When stopping work overnight or longer, as well as when the job is completed, place the pump equipment in a container of water. Clean the exterior of the pump of residual Albi Clad material using an old brush or rag. Activate pump to cycle water, directing the material hose back into the water can. When the pump and material hose are thoroughly clean, cycle a water compatible solvent through the pump to help prevent rusting. Disconnect the material line and remove the gun for hand cleaning.

Watch for Waste

Albi Clad TF is expensive material. Make sure to scrape the bottom of each drum to avoid unintentionally discarding hundreds of dollars of material.

Protecting the Albi Clad from Exterior Exposure

During application and curing Albi Clad TF must be protected from direct weathering such as rain, freezing, snow, etc. Once fully cured, Albi Clad TF can withstand some exposure to exterior conditions such as intermittent light rain and snow, until the building is weather tight. However, it is important to remember that Albi Clad TF is an interior product and it should be protected from steady direct precipitation even after it is cured.

The need for weather protection depends on the climate and season at the job site. For example, if the job is in Los Angeles in the summer where the chance of rain is almost zero, you will have little need to protect the fireproofing from the weather. On the other hand, for most places the weather is much less predictable, so you will need to provide protection from the elements until the building is closed up.

WEATHER CONDITIONS

Following are guidelines for cold, hot, and humid conditions. If you encounter these weather conditions in the middle of a job and need advice on how you might work through the situation or whether you might be able to exceed a specific guideline, please call our Albi Manufacturing. Our technical staff has experience and knowledge about the material, its limitations, and techniques that might work to help you continue an application.

Cold Weather Conditions

Because Albi Clad TF is water based, freezing is a danger and low temperatures are problematic. Be sure to follow these guidelines:

- 1. Albi Clad TF MUST be stored in a heated area at or above 50°F.
- 2. The steel substrate and ambient air must be at or above 50°F.

Hot Weather Conditions

When applying Albi Clad TF in high temperatures, coats must be thick enough to allow the water in the material to remain on the steel long enough to obtain proper adhesion. High temperatures accelerate water evaporation. Follow these guidelines:

- 1. The temperature of the steel substrate must not exceed 120°F.
- 2. Albi Clad TF should be stored indoors, out of direct sunlight at less than 120°F. If stored outdoors we recommend storing the drums in the open in shaded areas since the shipping containers can act like ovens.

Humid Application Conditions

When applying Albi Clad TF in areas under high humidity conditions, it is important to note the following:

- 1. Steel surfaces must be free from all residual moisture. Albi Clad TF should not be applied whenever the substrate surface temperature is less than 5 degrees F above the dew point of the surrounding air.
- 2. Following good painting practice Albi Clad TF should not be applied when the relative humidity exceeds 85%. Under certain circumstances you can apply the material up to a humidity of 90% if you keep the steel dry. Call the Albi lab for guidance.

AVOID THESE COMMON PROBLEMS

Failure to Mix Material

The Albi Clad TF looks uniform when shipped, but it is almost impossible to spray until it has been thoroughly mixed. Mechanical mixing will change the consistency from thick and puttylike to smooth, creamy and sprayable. Make sure it is mixed well.

Wrong Pump

Many problems occur when applicators try to use a lightweight or untested pump to spray this heavy material. Often they find that they cannot hang over 10 mil per coat. They may compound the problem by switching to an oversize spray tip to increase production, resulting in an unacceptable appearance.

Wrong Spray Tip

Tip Size impacts production rate, hangability and sprayability. When you go bigger to blow it on you will not achieve an attractive finish. If it is not going through recommended tip size, check again to see that the material is fully mixed.

Applying Too Little In One Coat

If you are using the right pump, spray tip and well mixed material, you really can spray 60-100 mils per coat. Some applicators who are just starting with Albi Clad TF are not confident about putting this much material on at first. Just remember to use proper spray technique and build with multiple passes.

Trying to Spray Too Much in One Coat

Although Albi Clad TF is a heavy material which can be built up fairly quickly, there are limits. If you try to load on too much material at once, it can slide off the steel, or it can go on leaving lumpy craters.

Untrained, Unskilled Applicators

Make sure that the people actually spraying the Albi Clad TF are skilled industrial painters who have been specifically instructed in how to apply this particular product. This manual is designed to help an Albi approved applicator extend the training to his workers. In addition, Albi conducts frequent factory training.

TROUBLESHOOTING

The Pump is Not Handling the Material Correctly.

Check material pressure gauge to make sure it is operable. Check material level in Albi Clad Drum to be sure sufficient material is covering the inlet material orifice and no cavitation is occurring. Check material inlet for possible malfunction or clogs. Check the pump manufacturer's booklet to find further recommendations.

Material is Going on Too Slowly.

"Help! I can't hang more than 10 mil at a time! This is taking forever!" This is probably due to using a light duty pump. It also may be that the Albi Clad TF was not sufficiently mixed before spraying.

Still Going Too Slowly—Taking Four or Five Coats

Some applicators new to Albi may proceed too cautiously, spraying too little at once, and requiring too many coats. You may be thinking of more general paint or competitors' fireproofing which goes at 20 to 25 mil. You may not be confident putting on as much as you can in one coat. Trust us you can spray 60-100 mils per coat. Just remember to use proper spray technique and build with multiple passes.

The Surface Looks Like Craters of the Moon

This is likely caused by using too large a tip. Return to the recommended tip sizes. Make sure the material is thoroughly mixed in order to flow through the right tip size.

The Material Keeps Sliding Off The Steel

You are probably spraying too much in one pass. Slow down. Temperature, humidity and airflow can affect the amount you can spray at one time. Adjust your production to the job's environmental conditions.

Repairing A Bad Surface

If an area shows runs or sags overnight, it is best to let that material dry completely and remove the sags with a handheld surform. Then apply any subsequent coats.

If an area shows drips, runs or sags while you are working on it, the best method is to remove the wet material and start over. It is very difficult to improve the appearance of sagging wet material by further spraying, as the problem is caused by excess material in the first place.

KEY POINTS WHEN TRAINING YOUR CREW

Albi Clad TF is not difficult to apply, however it does require following our guidelines to achieve an acceptable aesthetic finish. If you are factory trained by Albi, and now are preparing to instruct experienced industrial painters in how to apply this material, you will want to stress the following points:

I. Use proper equipment.

Be sure to use heavy duty airless spray equipment and the recommended tip sizes. (See page 4-6).

2. Mix well.

Be sure to mix the product thoroughly before spraying. Albi Clad TF will transform from thick and putty-like to smooth and creamy when you mix it.

- **3. Build up coats with multiple passes.** Some painters are surprised at how much you can hang in a single coat with this product—others will try to spray too much at one pass and the results will be unacceptable.
- **4. Concentrate on an aesthetic finish.** This product is both a functional fireproofing and an architectural finish. In order to do an acceptable job, your applicators must achieve a neat, uniform finish at the required thickness.
- **5. Adjust application technique to climate conditions.** Remember that high humidity or low temperatures will slow the evaporation rate of water, while high temperatures or drying winds will speed it. Match your application rates to jobsite conditions.

CHECKLIST FOR APPLYING ALBI CLAD TF

Priming and Surface Preparation ☐ Prime Steel or Check Compatibility of Primer. Albi Clad TF does not protect against corrosion. Be sure steel is primed with compatible primer. If uncertain, check compatibility of primer with Albi lab. ☐ Clean Primed Surfaces of residual oil, moisture, dust, frost or other contaminants. Remove any rust, and spot prime bare steel as needed. **Pump Equipment** ☐ Airless Pump. Heavy Duty Airless Spray pump, such as Speedflo Titan Power Twin 8900 or the Graco Gmax series. ☐ Airless Spray Gun \square **Spray Tips** A range of tip sizes from .419-.423 and 519 -523. ☐ **Hoses** Material lines must be rated at 3000 + psi working pressure with 3/8" inside diameter. Hose length should not exceed 150 feet. **Other Equipment** ☐ **Mixer.** Air-operated motor or electric mixer. ☐ **Drum Handling Equipment** (drum of TF weighs about 600 pounds) ☐ Movable Scaffolding as required ☐ **Tools:** Long-handled screwdrivers, wrenches, hose clamps. ☐ Extra 50 foot section of material hose ☐ **Empty 5-Gallon Pails** for clean up ☐ Spare Parts Kit as recommended by pump manufacturer ☐ Spare Hose Connectors for both material and air hoses, including swivel end connectors ☐ Masking Paper, Tape, Cloths ☐ OSHA approved Safety Equipment ☐ **Fiberglass Ribbon** as required for specific application ☐ Thickness Gauges for measuring wet and dry film thickness ☐ Foam Paint Rollers and Polyester Brushes in 3" and 4" widths ☐ **Trowel and Protective Gloves** for patch up work or reaching difficult areas.

CONTRACTOR'S CALCULATIONS AND MEASUREMENTS

Estimating Product Quantities

Coverage Guide: Albi Clad TF exhibits coverage rates per gallon, which can be easily calculated using a standard paint coverage equation. The formula is as follows:

1604____ X 0.70 (%volume solids)= square foot per gallon (at 100% coverage rate) dry film thickness

Converting Dry Film Thickness To Wet Film Thickness

Contractors will determine their own typical shrinkage rates based on their experience. We recommend planning on 15 - 25% shrinkage from wet to dry film.

WARRANTY/GUARANTEE INFORMATION

Limited warranty/limitation of liability: Information and recommendations provided by Albi are based upon extensive test data, laboratory experiments and years of field experience believed to be reliable. Statements made herein as to coverage, drying performance, application and other properties will vary according to the nature and conditions of the surfaces to which the product is applied.

Albi warrants that its products will meet the specifications that it sets for them. Albi's responsibility under this warranty will be limited solely to replacing the products which prove defective, provided that Buyer gives Albi prompt notice in writing of said defect and satisfactory proof thereof. Products may be returned to Albi only after written authorization has been obtained from Albi. The foregoing warranty is in lieu of all other warranties, whether oral, written, express, implied or statutory. IMPLIED WARRANTIES OF MERCHANTIBILITY AND FITNESS FOR A PARTICULAR PURPOSE WILL NOT APPLY. Technical or other advice is furnished by us solely as an accommodation and shall not increase the scope of our responsibilities or liability. Albi's warranty obligations and buyer's remedies hereunder are solely as stated herein. In no event will Albi be liable either for the labor and other associated costs incurred in replacing the product, including, but not limited to, its removal and application, or for other incidental or consequential damages.

Applicator shall guarantee that its installation of material conforms to manufacturer's recommendations and shall further guarantee his workmanship connected with the installation for a period of one year from the date of the installation.