



Factory Built Housing Construction Guide

National 
Gypsum®

Exclusive services provider for products manufactured by Gold Bond Building Products, LLC, ProForm Finishing Products, LLC and PermaBASE Building Products, LLC.

PROFORM[®] *Finishing Products*

Finish Strong with the Right Products

ProForm Finishing Products, LLC manufactures consistent high-quality formulas that are easy to apply, saving time and effort during the manufactured housing construction process. With consistent product performance, the installation process is easier and faster.

Key Products:

- ProForm's Factory Built Housing Texture Grade tote is simple to use and offers consistency on each application.
- FasTrack setting compounds were developed for the unique requirements of manufactured housing construction where speed and strength are critical factors.
- ProForm Finishing Products offers the only full line of mold and mildew resistant finishing products.

Supported by best-in-class customer service, you can expect more in all phases of finishing with ProForm Finishing Products.

Select products are GREENGUARD certified for low chemical emissions into indoor air during product usage. Visit the Design & Resource Center on nationalgypsum.com for details.

ProForm® Setting Compound Products



Set Times Available in
15, 20, 30, 45, 60 and 90 minutes

ProForm® FasTrack® Setting Compound

ProForm® FasTrack® Setting Compound is a high-strength, quick-setting joint compound that develops high strength within the first hour of application, minimizing the potential for cracks and fractures. One coat of FasTrack Setting Compound is normally all that is required when the surface is to be spray textured.

ADVANTAGES

- Streamlines scheduling – recoat immediately once previous coat sets.
- Provides excellent bond.
- Stays strong/highly durable surface.
- Shrinks less and dries white.
- Allows easy mixing.

APPLICATIONS

- Works well for heavy fills, beads, trims, joint finishing and laminating gypsum panels.

PACKAGE DETAILS

Bag: 30 lbs (18.2 kg)

APPROXIMATE COVERAGE

300-400 sq ft
(27-37 sq m)/bag

MIXING

3-4 gal (11.3-15.1 L) water/bag



Set Times Available in
20, 45, 60 and 90 minutes

ProForm® FasTrack® Plus Setting Compound

ProForm® FasTrack® Plus Setting Compound is a fast setting, hardening, sandable compound which is 30% lighter than conventional FasTrack. Thus, it requires less time and effort to work.

FasTrack Plus is specifically formulated to allow a joint finishing job to be started in the morning and finished by the end of the day. Unlike many conventional all-purpose compounds, FasTrack Plus can be recoated as soon as the previous coat sets, allowing same-day joint finishing.

ADVANTAGES

- Streamlines scheduling – recoat immediately once previous coat sets.
- Provides excellent bond.
- Stays strong/highly durable surface.
- Shrinks less and dries white.
- Allows easy mixing and sanding.

APPLICATIONS

- Works well for heavy fills, beads, trims, joint finishing and laminating gypsum panels.

PACKAGE DETAILS

Bag: 25 lbs (11.3 kg)

APPROXIMATE COVERAGE

300-400 sq ft
(27-37 sq m)/bag

MIXING

3-4 gal (11.3-15.1 L) water/bag



ProForm[®] Texture Products



ProForm[™] Perfect Spray[®] Medium Aggregated Texture Spray

Use on interior ceilings with new, primed or previously painted gypsum board or monolithic concrete/plaster. Works with standard spray equipment.

ADVANTAGES

- Mixes easily and provides low fallout.
- Achieves bright white appearance providing bold accent and hiding minor surface defects.
- Contains shredded polystyrene aggregate – sprays quickly.

APPLICATIONS

- Use on interior ceilings with new, primed or previously painted gypsum board or monolithic concrete/plaster
- Works with standard spray equipment.

PACKAGE DETAILS

Bag: 40 lbs (18.2 kg)

APPROXIMATE COVERAGE

300-400 sq ft
(27-37 sq m)/bag

MIXING

3-4 gal (11.3-15.1 L) water/bag



ProForm[™] Wall & Ceiling Spray[®] Non-Aggregated Texture Spray

Use on walls and ceilings. Also use on a wall surface finished with a coat of paint or concrete coated with an alkali-resistant primer/sealer. This applies without overspray impacting the ceiling.

ADVANTAGES

- Mixes and pumps easily.
- Creates a variety of textures, including spray spatter, spatter knockdown and orange peel.
- Offers textures in several light-reflecting finishes.

APPLICATIONS

- Use on walls and ceilings.
- Applies without overspray impacting ceiling.
- Use on wall surface finished with a coat of paint or concrete coated with an alkali-resistant primer/sealer.

PACKAGE DETAILS

Bag: 50 lbs (22.7 kg)

APPROXIMATE COVERAGE

500-1,500 sq ft
(46-139m²)/bag

MIXING

4-5 gal (15-19 L) water/bag



ProForm[™] Perfect Spray[®] EM Non-Aggregated Texture Spray

Use for both walls and ceilings.

ADVANTAGES

- Provides an innovative time and money-saving option to ordinary painting.
- Decorative texturing product for fast spray applications to interior surfaces.
- Bright white finish.
- Mold resistant.

APPLICATIONS

- Use on walls and ceilings.
- Works with standard spray equipment.

PACKAGE DETAILS

Bag: 50 lbs (22.7 kg)

APPROXIMATE COVERAGE

500-1,500 sq ft
(46-139m²)/bag

MIXING

4-5 gal (15-19 L) water/bag

ProForm® Ready Mix Products



ProForm® All Purpose Joint Compound Standard Weight

Use for taping, finishing joints and cornerbead, spotting fasteners, skimming and textures, and repairing cracks in plaster walls.

ADVANTAGES

- Applies easily and provides excellent bond.
- Stays strong – highly durable surface.
- Lessens pocking and pinholing.
- Works great for first phases of finishing.
- Mold resistant.

APPLICATIONS

- Taping.
- Finishes joints and cornerbead
- Spots fasteners.
- Skims and textures.
- Repairs cracks in plaster walls.

PACKAGE DETAILS

- Pail: 61.7 lbs (28 kg)
12 lbs/1 gal (5.4 kg)
- Carton: 48 lbs (21.8 kg)
50 lbs (22.7 kg)
61.7 lbs (28 kg)

APPROXIMATE COVERAGE

123-140 lbs/9 gal per 1,000 sq ft



ProForm® Lite Blue™ Joint Compound Lightweight

Lite Blue Joint Compound is approximately 30% lighter than a conventional ready mix. Designed for use in finishing gypsum board joints, spotting fasteners, and finishing corner bead.

ADVANTAGES

- Reduces shrinkage by up to 33%.
- Lessens pocking and pinholing.
- Pulls and sands easily.
- Provides superior finish.
- Covers metal beads in two coats.

APPLICATIONS

- Finishes joints and cornerbead
- Spots fasteners.
- Textures.

PACKAGE DETAILS

- Pail: 4.5 gal (17 L)
- Carton: 3.5 gal (13.2 L)
4.5 gal (17 L) Midwest only

APPROXIMATE COVERAGE

123-140 lbs/9 gal per 1,000 sq ft



ProForm® Multi-Use Joint Compound Medium Weight

A happy medium, ProForm Multi-Use weighs up to 20% less than standard weight ready mix. This formula has its own special features and a nine-month shelf life under good storage and application conditions.

ADVANTAGES

- Weighs up to 20% less than standard ready mix.
- Shrinks less than all purpose formula.
- Provides excellent bond.
- Lessens pocking and pinholing.
- Mold resistant.

APPLICATIONS

- Taping.
- Finishes joints and cornerbead.
- Spots fasteners.
- Skims and textures.
- Repairs cracks in plaster walls.

PACKAGE DETAILS

- Pail: 4.5 gal (17 L)
- Carton: 3.5 gal (13.2 L)
4.5 gal (17 L)

APPROXIMATE COVERAGE

123-140 lbs/9 gal per 1,000 sq ft

ProForm® Topping Joint Compound

Use for finishing joints and cornerbead, spotting fasteners and textures.



ADVANTAGES

- Spreads easily.
- Lessens pocking and pinholing.
- Sands easily.
- Mold resistant.

APPLICATIONS

- Finishes joints and cornerbead.
- Spots fasteners.
- Textures.

PACKAGE DETAILS

Pail: 61.7 lbs (28 kg)
Carton: 50 lbs (22.7 kg)

APPROXIMATE COVERAGE

123-140 lbs/9 gal per 1,000 sq ft

ProForm® Factory Built Housing Texture Grade Mix Compound

Specially formulated for texturing walls and ceilings.



ADVANTAGES

- No mixing or thinning required; ready to use.
- Excellent bond.
- Dries white.
- Conceals minor imperfections.

APPLICATIONS

- Spray-on texture for ceilings and walls.
- Allows great texture pattern versatility.
- Provides a light texture.

PACKAGE DETAILS

Tote: 275 gal (1,049L)

APPROXIMATE COVERAGE

50-150 sq ft /gal

ProForm Joint Tape Products

ProForm™ Paper Joint Tape

ProForm™ Paper Joint Tape conceals and reinforces gypsum board joints. The tape is buffed on both sides to ensure the best working qualities and bond. A center creasing process allows easy folding for use at corners.



ADVANTAGES

- Creates added strength in joints.
- Provides superior bond – buffed on both sides.
- Folds at corners easily – due to center crease.
- Resists distortions, such as stretching, wrinkling and tearing.

APPLICATIONS

- Use on gypsum panel joints and interior angles – apply crease side in.
- Use with ready mix joint compounds.
- Embed in ProForm joint compound, removing excess compound.

PACKAGE DETAILS

75 ft. (22.9 m) rolls
(20 rolls / carton)

250 ft. (76.2 m) rolls
(20 rolls / carton)

500 ft. (152.4 m) rolls
(10 rolls / carton)

APPROXIMATE COVERAGE

375 ft. (114 m) per 1,000 sq. ft.
(93 sq m) of gypsum board

ProForm® Installation Guide



Ready Mix Compounds

ENVIRONMENTAL CONDITIONS

Varying weather conditions can impact both the quality and appearance of taped drywall joints. Relative humidity, plus temperature, will affect the working characteristics of all joint compounds.

The potential for finishing and decorating problems are minimized when temperature, humidity and airflow remain constant and as close to occupancy environmental conditions as possible. A minimum temperature of 50°F (10°C) should be maintained continuously for 48 hours prior to and throughout the finishing process until applied materials are thoroughly dry.

For example, cool wet weather will slow down the drying process while hot, dry weather hastens the drying process. Exposure to winds, breezes or drafts while drying can also affect the performance of joint compounds. Typical problems from improper drying can be cracking, excessive shrinkage, ridging and beading, banding or bond failure. A further explanation of these conditions is outlined in the "Problems and Solutions" section of this guide.

Proper precautions at the jobsite should always be taken to minimize the adverse effects of weather on drying. These precautions will ultimately reduce the application time and expense from call backs and rework.

STORAGE

Shelf-life up to 9 months under good storage conditions. See production date code. To prevent spoilage and freezing, maintain temperature at a minimum 50°F (10°C) and protect container from exposure to extreme heat and sunlight.

Frozen Ready Mix. Allow material to thaw at room temperature for at least 24 hours. When thawed, turn the container upside-down for at least 15 minutes. Turn pail right side up, remove lid and immediately remix with an electric drill. Ready Mix should be

lump free and ready to use within 1 minute. Discard all Ready Mix that does not remix to a lump-free consistency.

Stacking

Ready Mix pails or cartons should not be stacked more than two pallets in height.

JOINT COMPOUND DRYING TIMES

Approximate Drying Times for Ready Mix Joint Compound

| Relative Humidity | Temperature | | | | | | |
|-------------------|-------------|-------|--------|--------|------|--------|------|
| | 32° | 40° | 50° | 60° | 70° | 80° | 100° |
| 0% | 38/H | 28/H | 19/H | 13/H | 9/H | 6/H | 3/H |
| 20% | 2/D | 34/H | 23/H | 16/H | 11/H | 8/H | 4/H |
| 40% | 2.5/D | 44/H | 29/H | 20/H | 14/H | 10/H | 5/H |
| 50% | 3/D | 2/D | 36/H | 24/H | 17/H | 12/H | 6/H |
| 60% | 3.5/D | 2.5/D | 42/H | 29/H | 20/H | 13.5/H | 8/H |
| 70% | 4.5/D | 3.5/D | 2.25/D | 38/H | 26/H | 19.5/H | 10/H |
| 80% | 7/D | 4.5/D | 3.25/D | 2.25/D | 38/H | 27/H | 14/H |
| 90% | 13/D | 9/D | 6/D | 4.5/D | 3/D | 49/H | 26/H |
| 98% | 53/D | 37/D | 26/D | 18/D | 12/D | 9/D | 5/D |

Note: D = Days (24 hour period) H = Hours

The chart above is a helpful guide in determining approximate drying times for joint compounds under a variety of humidity/temperature conditions. Shaded area is below the minimum application temperature requirement of 50°F and is not recommended for the application of joint compound.

MOLD AND MILDEW GROWTH PROTECTION

ProForm® All Purpose with Dust-Tech® Joint Compound and ProForm® Lite Blue™ with Dust-Tech® Joint Compound

All ProForm products are mold and mildew resistant but the ProForm Dust-Tech products meet and achieve the highest test score. ProForm All Purpose with Dust-Tech and Lite Blue with Dust-Tech were designed to provide extra protection against mold and mildew compared to standard ready mix compound. When tested by an independent lab per ASTM D3273 (Standard Test Method for Resistance to Growth of Mold on the Surface of Interior Coatings in an Environmental Chamber), ProForm Ready Mix with Dust-Tech achieved a score of 10, the best possible score for this test.

These products also resist the growth of mold per ASTM G21 (Standard Practice for Determining Resistance of Synthetic Polymeric Materials to Fungi) with a score of 0, the best possible score.

When tested in a system with ProForm™ Paper Joint Tape, Gold Bond® XP® Gypsum Board or Gold Bond® eXP® Interior Extreme® Gypsum Panels, this system achieves a score of "10" for ASTM D3273 and a score of "0" for ASTM G21. These are the best possible mold-resistant scores for these tests.

MOLD AND MILDEW RESISTANCE

Planning and Prevention

Planning and prevention is the most effective way to avert the growth of mold or mildew. Gypsum wallboard and finishing products should be delivered to projects as near to the time it will be used as possible. Wallboard delivered to a job site must be placed under cover immediately, properly protected and not exposed to outside elements such as rain, snow or other high moisture conditions.

If building materials get wet from any moisture source, that source must first be identified and corrected. If mold or mildew growth occurs, or if you suspect it might occur due to environmental conditions and moisture, a determination must be made to either attempt to dry and clean the affected areas or to replace the affected materials. Care must be taken in this evaluation, and if you do not have the training or experience to recognize and to make proper decisions about repair or removal, you should consult a professional.

No material can be considered "mold proof," nor is it certain that any material will resist mold or mildew indefinitely. When used in conjunction with good design, handling and construction practices, Ready Mix with Dust-Tech can provide increased mold resistance versus standard ready-mixed compounds. As with any building material, avoiding water exposure during handling, storage and installation and after installation is complete is the best way to avoid the formation of mold or mildew.

Setting Compounds

MIXING

Mix no more compound than can be applied in the designated set time. Place the amount of water recommended, (see mixing ratio) on compound packaging in a clean mixing container. Add compound gradually to clean, drinkable water while stirring. Mix the compound free of lumps with a mechanical mixer or by hand. Allow standing (soak) for 1 minute, and then remix until consistency is smooth and creamy. If a thinner or thicker mix is desired, add water or powder sparingly. Careful not to overmix as it could lead to shortened working times. DO NOT mix with any other joint compounds (wet or dry) and not recommended for use in automatic tools.

ESTIMATED WORKING AND SETTING TIMES

One of the most crucial things for selecting the proper ProForm FasTrack compound is matching its working time and setting time ranges to the project. It should be noted that working time and setting time are not the same.

Working Time

Working time refers to the period during which the ProForm FasTrack is usable for application. At the end of this time, the material begins to stiffen and can no longer be spread easily. Working time should correspond to the required time for actual application.

Setting Time

Setting time refers to the time after which the applied ProForm FasTrack compound will become adequately hardened so that another layer can be applied. For manufactured or modular builders, the setting time should match your timetable for moving a floor along the line.

APPROXIMATE WORKING TIME VS. SET/HARDENING TIME

| FasTrack / FasTrack Plus | Working Time (Minutes) | Set/Hardening Time (Minutes) |
|--------------------------|------------------------|------------------------------|
| 5 | 3-5 | 10-20 |
| 20 | 15-20 | 20-40 |
| 45 | 35-45 | 45-70 |
| 90 | 70-90 | 90-125 |
| 210 | 180-210 | 210-280 |

LIMITATIONS

- Do not apply over moist surfaces or surfaces subject to direct moisture.
- Do not mix with any other material. Use only clean, room temperature, drinkable water.
- Mixing equipment and tools must be thoroughly cleaned between batches.
- Each fresh batch of compound must be kept free of previous batches; otherwise the working time will be shortened.
- High-speed mixing or excessive mixing will shorten the working time of the ProForm FasTrack compounds.
- Do not add water or remix after compound begins to thicken and harden.
- Not recommended for use in automatic taping tools.
- Close opened bag as tight as possible for storage or setting time may be affected.
- Shelf life up to 6 months in high humidity areas and 12 months under good storage conditions. See production date code. To prevent spoilage and freezing, maintain temperature at a minimum 50°F (10°C) and protect container from exposure to extreme heat, sunlight and water.
- The potential for finishing and decorating problems are minimized when temperature, humidity and airflow remain constant and as close to occupancy environmental conditions as possible. A minimum temperature of 50°F (10°C) should be maintained continuously for 48 hours prior to and throughout the finishing process until applied materials are thoroughly dry.

ProForm® Installation Guide (Continued)

FREQUENTLY ASKED QUESTIONS

Why is the product lumpy after mixing?

- Water was added to the ProForm FasTrack, rather than the compound being added to the water.
- ProForm FasTrack was not allowed to soak (for approximately 1 minute) after initial mix before remixing was initiated.

Why is the product setting much faster than the advertised range?

- Dirty mixing water and/or application tools.
- Excessive mixing of the compound.
- Foreign material (accidentally or deliberately) added to the mixture.
- Mixing water too hot.

Why is the product setting much slower than the advertised range?

- Too much water was used.
- Impure water source (dissolved organics in the water generally retard the set time).
- Foreign material (accidentally or deliberately) added to the mixture.
- Water too cold.
- Product was remixed after initial stiffening began.

Why does the product display weak strength?

- Too much water was used.
- Foreign material (accidentally or deliberately) added to the mixture.

JOINT AND CORNER FINISHING APPLICATION

1. ProForm FasTrack compounds should be mixed in accordance with the printed instructions on the package.
2. A uniformly thin layer of joint compound should be applied over the joint approximately 4" wide. Tape should be centered over the joint and embedded into the compound leaving sufficient joint compound under the tape for proper bond. Ceiling and wall angles plus all inside corner angles should be reinforced with tape folded to conform to angles and embedded into the compound.
3. After compound is thoroughly dry or hard (approximately 24 hours for Regular compound or 2 hours for FasTrack), joint tape should be covered with a coat of joint or topping compound. The compound should be spread over the tape approximately 3" on each side and feathered out at edges. After thoroughly dry, another coat of joint or topping compound should be applied with a slight uniform crown over the joint. This coat should be smoothed and feathered approximately 3" beyond the preceding coat.
4. All inside corners should be coated with at least one coat of joint or topping compound and the edges feathered out.
5. All nail or screw head dimples should receive three coats. This may be applied along with each joint coat.

6. Flanges of gypsum board cornerbead should be concealed by at least two coats of compound. The second coat should be feathered out approximately 9" on both sides of the exposed metal nose.
7. For joint and corner treatment with FasTrack Compound, fill joint and bed tape simultaneously. After FasTrack Compound has hardened, apply any ProForm Joint Compound.
8. For wet sanding, allow each application of compound to dry or harden. If dry sanding is performed, ventilate work area and/or use a NIOSH/MSHA-approved respirator. Safety glasses are also recommended. Caution should be used to avoid roughing the wallboard paper. All gypsum board and treated areas should be smooth and ready for decoration.

Spray Textures

RECOMMENDED APPLICATION PRACTICES

Gypsum Board:

Surfaces, including joint-treated areas, must be smooth, clean and dry. First apply a coat of sealing primer. Allow primer to dry thoroughly, and maintain adequate drying conditions after application. Primer is to minimize sagging of gypsum board and discoloration or difference in sheen on ceiling surface. Add dry texture to water. Use a piston pump or Mono-type pump with a texture gun. Minimum 3/4" I.D. material hose. A hopper-type gun with adequate air supply is also suitable. Typical coverage is 8-10 sq. ft. per lb. for aggregated and 10-30 sq. ft. per lb. for nonaggregated textures. Mask appropriate areas before spraying and promptly remove overspray from unprotected surfaces afterward. Follow the instructions of the spray equipment manufacturer for adjusting controls and cleaning. If a second coat is desired, allow the first coat to dry thoroughly.

Note: For ceilings to receive water-based texture, apply minimum 1/2" gypsum board perpendicular to framing members spaced 16" o.c. Apply minimum 1/2" sag-resistant or 5/8" gypsum board to framing members spaced 16" o.c.



Five Levels of Finish for Gypsum Board

LEVEL 0

- Typically specified in temporary construction or whenever the final decoration has not been determined. No taping, finishing or accessories required.

LEVEL 1

- Typically specified joint treatment in smoke barrier applications and areas not normally open to public view, such as plenum areas above ceilings, attics, and other areas where the assembly would generally be concealed.
- All joints and interior angles shall have tape embedded in joint compound. Excess joint compound, tool marks and ridges are acceptable.
- Accessories are optional unless specified in the project documents.

LEVEL 2

- Typically specified where gypsum panel products are used as a substrate for tile; may be used in garages, warehouse storage or other similar areas where surface appearance is not a concern.
- All joints and interior angles shall have tape embedded in joint compound and wiped with a joint knife, leaving a thin coating of joint compound over all joints and interior angles. Joint compound applied over the body of the tape at the time of tape embedment shall be considered a separate coat of joint compound and shall satisfy the conditions of this level.
- Fastener heads and accessories shall be covered with one (1) coat of joint compound. Surface shall be free of excess joint compound. Tool marks and ridges are acceptable.

LEVEL 3

- Typically specified in appearance areas which are to receive heavy- or medium-texture finishes (spray or hand applied) before final painting, or where heavy-duty/commercialgrade wallcoverings are to be applied as the final decoration. The design professional shall specify the mock-up procedure and mock-up construction details within the project documents. This level of finish is not recommended for smooth wall designs or applications where light textures, non-continuous textures or lightweight wallcoverings are applied.
- All joints and interior angles shall have tape embedded in joint compound and shall be immediately wiped with a joint knife, leaving a thin coating of joint compound over all joints and interior angles. One (1) separate coat of joint compound shall be applied over all joints and interior angles. Fastener heads and accessories shall be covered with two (2) separate coats of joint compound. The surface shall be smooth and free of tool marks and ridges.
- Jobsite mock-up(s) shall be used to determine acceptance of the finish within the building.

Note: It is recommended that the final decoration specification (e.g., painting specification) include the application of a priming material prior to the decoration.



0 No taping, finishing or accessories required.



1 All joints and interior angles have tape set in compound.



2 Thin coating of compound over all joints and interior angles.

ProForm® Installation Guide (Continued)

LEVEL 4

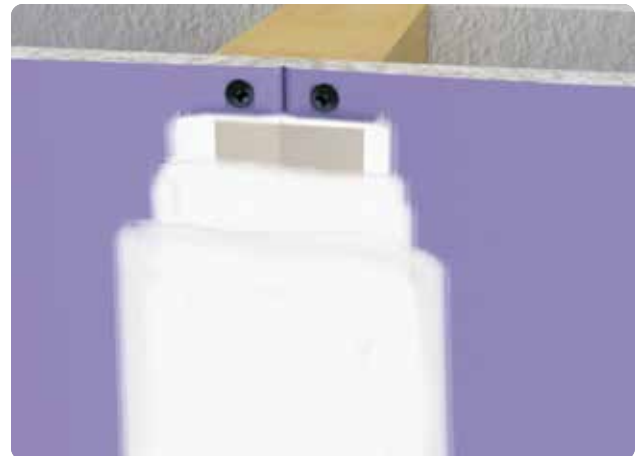
- Typically specified in appearance areas where smooth wall designs are decorated with flat paints, light textures, non-continuous textures or wallcoverings are to be applied. The design professional shall specify the mock-up procedure and mock-up construction details within the project documents. This level of finish is not recommended where non-flat or dark/deep tone paints are applied.
- In critical lighting areas, flat paints applied over light continuous textures tend to reduce joint photographing.
- The weight, texture and sheen of wallcoverings applied over this level of finish should be carefully evaluated. Joints and fasteners must be adequately concealed if the wallcovering used is of lightweight construction, contains limited pattern, has a sheen level other than flat, or any combination thereof. Unbacked vinyl wallcoverings are not recommended over this level of finish.
- All joints and interior angles shall have tape embedded in joint compound and shall be immediately wiped with a joint knife, leaving a thin coating of joint compound over all joints and interior angles. Two (2) separate coats of joint compound shall be applied over all flat joints and one (1) separate coat of joint compound shall be applied over interior angles. Fastener heads and accessories shall be covered with three (3) separate coats of joint compound. The surface shall be smooth and free of tool marks and ridges.
- Where glass mat and/or fiber reinforced gypsum panels are installed, refer to the gypsum panel manufacturer for specific finishing recommendations.
- Jobsite mock-up(s) shall be used to determine the acceptance of the finish within the building.

Note: It is recommended that the final decoration specification (e.g., painting specification) include the application of a priming material prior to the decoration.

LEVEL 5

- Typically specified in appearance areas where smooth wall designs are decorated with non-flat paints (i.e., sheen/gloss) or other glossy decorative finishes, dark/deep tone paints are applied, or critical lighting conditions occur. The design professional shall specify the mock-up procedure and mock-up construction details within the project documents. This level of finish is the most effective method to provide a uniform surface and minimize the possibility of joint photographing and/or fasteners showing through the final decoration.
- All joints and interior angles shall have tape embedded in joint compound and shall be immediately wiped with a joint knife, leaving a thin consistent coating of joint compound over all joints and interior angles. Two (2) separate coats of joint compound shall be applied over all flat joints and one (1) separate coat of joint compound shall be applied over interior angles. Fastener heads and accessories shall be covered with three (3) separate coats of joint compound. A thin skim coat of joint compound (see "Skim Coat" in Comments) or a material manufactured especially for this purpose shall be applied to the entire surface. The surface shall be smooth and free of tool marks and ridges.
- Where glass mat and/or fiber reinforced gypsum panels are installed, refer to the gypsum panel manufacturer for specific finishing recommendations.
- Jobsite mock-up(s) shall be used to determine acceptance of the finish within the building.

Note: It is recommended that the final decoration specification (e.g., painting specification) include the application of a priming material prior to the decoration.



3 Additional coating of compound over joints and interior angles. Smooth and free of tool marks and ridges.



4 Another coating of compound over flat joints, smooth and free of tool marks or ridges.



5 Skim coat applied over entire surface. Surface smooth and free of tool marks or ridges.

For more information, refer to Gypsum Association document, GA-214.

ProForm[®] Problems and Solutions

JOINT PROBLEMS

| CONDITION | PROBABLE CAUSE | PREVENTATIVE ACTION | CORRECTIVE ACTION |
|---------------------------|--|--|---|
| Tape Photographing | Slow drying of finishing coats. Too much compound under tape. Joint compound too thin. | Correct drying conditions. Embed tape properly. Use joint compound thicker. Use ProForm Joint Tape. | Sand down the tape outline and seal. Refloat if necessary before decoration. Prevent finish coat moisture from re-wetting the tape by applying a thinner coat for fast drying. |
| Starved Joint | Compound applied too thin in viscosity and thickness. Too little compound over joint. Excessive sanding. | Use finishing compound at heavier viscosity and proper thickness of coats. Do not over-sand. | Allow to thoroughly dry, then apply an additional coat of topping or joint compound. |
| High Joint | Excess joint compound under the tape. Excess joint compound over the tape and improper feathering. Poor framing. Improper gypsum board application. Improper sanding. Use of compound too heavy. | Proper thickness of compounds for taping and finishing. Feather finishing coats wider than previous coats. Correct poor framing and improper gypsum board application to ensure proper alignment. Sand properly. | Sand joint to near flush without sanding into tape. Apply a wider finishing coat properly feathered, if necessary. Apply a second finishing coat or skim coat. |
| Beading/Ridging | Lumber expansion and contraction. Improper heating and ventilation. Cold weather with high humidity. Improper application of gypsum board. Excess compound over joints and needless wide joints. Rough or poorly cut butt joint. | Use ProForm FasTrack Setting Compound to minimize beading or ridging. Alternatives include: double-layer lamination system. | Allow one full heating cycle – 6 months to 1 year – before repairing, then sand ridge flush and apply one or more finishing coats of joint or topping compound. Use critical lighting to determine if bead is eliminated prior to decoration. |

TEXTURING PROBLEMS

| CONDITION | PROBABLE CAUSE | PREVENTATIVE ACTION | CORRECTIVE ACTION |
|--|--|---|--|
| Lumping | Too much water added to initial mix. Adding water to powder. | Add powder to water using less water than initially specified. After mix is smooth and lump-free, add remaining water to adjust mix to a workable viscosity. | Add powder until mix thickens. Continue mixing until lumps disappear. |
| Mix Too Thin | Too much water added in initial mix or inadequate soaking time in cold water. | Use recommended water requirements in initial mix. Allow mixed ingredients to soak for several minutes, when necessary, if using cold water. | Add powder until mix thickens. |
| Aggregate Fallout (During Spraying) | Spray gun too close to surface and/or excessive air pressure at nozzle. | Hold spray gun at proper distance and angle from surface to prevent aggregate fallout. | Lower air pressure. Hold spray gun at proper distance and angle from surface to prevent excessive fallout. |
| Aggregate Floatout | Too much water added during initial mix and/or inadequate mixing after initial water is added. | Use recommended water requirements and make sure water is properly blended into mix. | Add powder until mix thickens. |
| Poor Coverage | Mix too thick for proper spray viscosity and/or improper application such as spraying too slow, overloading surface with spray material and using incorrect spray pressures. | Use recommended water volume for mixing to ensure sprayable viscosity. Use proper spray application to ensure uniform dispersion of aggregate and proper coverage. | Carefully add water to mix. Use proper spray techniques. Adjust spray pressure. |
| Poor Hide | Over-thinned mix causing a reduction in both wet and dry hide. Mix too thick causing poor atomization resulting in surface show-through. Improper application/over-extending spray. Selecting improper spray pressures. No primer used prior to texturing. | Use recommended water volume for mixing to ensure sprayable viscosity. Use proper spray application to ensure uniform dispersion of aggregate and proper coverage. Use a good quality drywall primer. | Add powder or water depending on mix consistency. Adjust spray pressure. Use proper spray technique. Apply finished paint over textured surface. |

ProForm[®] Problems and Solutions (Continued)

TEXTURING PROBLEMS (CONTINUED)

| CONDITION | PROBABLE CAUSE | PREVENTATIVE ACTION | CORRECTIVE ACTION |
|---|---|--|---|
| Poor Bond Or Hardness | Over-thinned mix results in over-dilution of latex binder in spray texture. Improper surface preparation. Contamination with other materials. | Use recommended water volume for mixing. Remove all loose material, dust, grease, oil and prime surface with a quality drywall primer. Do not intermix with other products. Always use a clean mixing container and clean water. | Scrape down surface and repeat application following recommendations under "Preventive Action." |
| Clogged Spray Equipment | Contamination of mix with oversized particles can sometimes clog spray nozzle orifice. | Prevent contamination during mixing and spraying. Use correct nozzle size for aggregate being sprayed. | Check mix for contamination and/ or oversized particles. If contaminated, screen out contaminants or discard and remix new batch. |
| Material Pumping Problems | Mixed spray material too heavy. Pump equipment old and worn. Equipment improper size for spray product. | Use recommended water volume for mixing. Make sure proper equipment is being used and that spray machine is in good repair. | Thin mix if too heavy for pumping. |
| Unsatisfactory Spray Pattern | Worn spray equipment (either fluid or spray nozzle) and/or improper air pressure. Improper spray technique and/or poor spray mix consistency. | Inspect spray nozzles to ensure good working condition. Replace any worn parts. | Improve spraying technique. Add recommended water volume to ensure proper spraying consistency. |
| Texture Buildup | Spraying or texturing over surfaces with major differences in surface porosity or suction (improperly primed). Thin texture will tend to build up over high suction surfaces. | Prime entire surface with a good quality drywall primer. Follow mixing instructions. | Remove all texture from sprayed surface and re-apply following instructions under "Preventive Action." |
| Joint Show-Through | Over-extended and over-thinned primer won't adequately hide the contrast between finished joints and gypsum board paper. | Use recommended water volume when mixing texture and apply at recommended coverage rates. Prime surface with a good quality drywall primer prior to application of spray texture. | Allow spray to thoroughly dry, then prime with a quality drywall primer and re-spray or paint textured surface. |
| Joint Show Through As White Band | Spraying over unprimed surfaces during cool, humid, slow drying conditions. Joint stays white, water solubles in gypsum board paper bleed through. | Prime surface with a good quality drywall primer before applying texture. | Allow spray to thoroughly dry, then paint textured surface. |

SHRINKAGE PROBLEMS

| CONDITION | PROBABLE CAUSE | PREVENTATIVE ACTION | CORRECTIVE ACTION |
|---------------------------------|---|--|---|
| Shrinkage | Compound used too thin or watery. Applied too soon after mixing. Improper drying between coats. Painting before joints are thoroughly dry. Too deep fills in one coat. Slow drying. | Use compound at heaviest workable consistency. Allow to stand before using. Allow thorough drying of compound between coats and prior to painting. Apply additional coats on deep fills. Provide proper drying. | Allow to thoroughly dry and re-coat. Provide proper drying. |
| Delayed Shrinkage | Improper drying conditions. Painting before compound and gypsum board are thoroughly dry. Under high humidity, slow drying conditions, joints and gypsum board may hold moisture for weeks. | Provide proper drying conditions. Allow complete drying before each coat of joint treatment and before repainting. | Allow to thoroughly dry and re-coat affected joints. |
| Misinterpreted Shrinkage | Improper gypsum board application, including: nails dimpled too deep, fractured core of gypsum board, fractured face paper, corner bead applied improperly, tape photographing. | Less dimple of nails. Press gypsum board snug to nailing member before dimpling nail. Re-nail where necessary. Use ProForm FasTrack Compound for at least the first coat on nails and corner bead. (See Tape Photographing.) | Nails: re-nail where necessary. Cut out any loose areas and fill with two or more coats of ProForm FasTrack or regular joint compound. Re-coat corner bead. |

MISCELLANEOUS PROBLEMS

| CONDITION | PROBABLE CAUSE | PREVENTATIVE ACTION | CORRECTIVE ACTION |
|---------------------|---|--|--|
| Pock Marking | Entrapment of air in the mixed compound and in application. Overmixing of compound. Compound mixed too thin. Heavy fills. Improper application technique. Compound applied too loosely. | Mix compound as quickly as possible and let stand until binder is in solution before remixing. Mechanical mixers should have 500 RPM maximum. Use heavier mix. Make additional passes over joints and bead with hand or mechanical tools. File trowel edges square regularly to avoid entrapment in application. Apply compound thinly and use more pressure on finish coat. | Remove sanding dust that may collect in "pocks" prior to painting and refloat joint as necessary. When condition exists after painting, float with compound and repaint. |



National Gypsum Company

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Technical Information

Visit nationalgypsum.com or call 1-800-NATIONAL (628-4662).

Technical Information Información Técnica

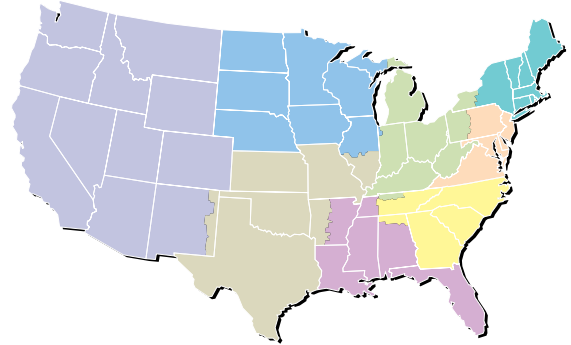
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National Gypsum Company is the exclusive service provider for products manufactured by Gold Bond Building Products, LLC, ProForm Finishing Products, LLC and PermaBASE Building Products LLC.

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- | | |
|--|---|
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