



TRADEMARKS DENSARMOR, DENSARMOR PLUS, DENSSHIELD, FIREGUARD, READY MIX and TOUGHROCK are trademarks of Georgia-Pacific Corporation or one of its subsidiaries.

UPDATES AND CURRENT

INFORMATION The information in this document may change without notice. Visit our website at www.gpgypsum.com for updates and current information.

LIMITATION OF REMEDIES AND DAMAGES

Our sole liability for any product claim shall be limited to reimbursement of the cost of repair or replacement of the affected product, up to a maximum amount of two times the original purchase price for the affected product. We shall not be responsible under any circumstances for lost profits, damage to a structure or its contents, or indirect, incidental, special or consequential damages. Claims shall be deemed waived if they are not submitted to us in writing within ten days after discovery.

SAFETY CAUTION: This product contains fiberglass. Fibers and dust may be released from this product during normal handling and may result in skin, eye and respiratory irritation. Avoid breathing dust and contact with the skin and eyes.

Follow these standard work practices: Wear a loose-fitting, long-sleeved shirt and long pants, protective gloves and eye protection (goggles or safety glasses with side shields). Wear a dust mask when sanding. Additional protection may be needed when very dusty. Do not use a power saw. For Material Safety Data Sheet or additional information, call 1-800-225-6119 or visit our website.

1-800-BUILD GP
www.gp.com/build

DensArmor® and DensArmor Plus™ Paperless Interior Drywall Wallworks Guide

Planning, Applying, Installing, Finishing
and Repairing Your Walls and Ceilings.

stopfeedingmold.com



Plan

1. Sketch

A little planning before the job begins can save you a lot of time and materials later on.

- Sketch out the area you want to cover with DensArmor®/DensArmor Plus™. Use the sketch as a guide to determine how much drywall you'll need.
- Remember to plan for the board to be installed across (perpendicular to) joists and/or studs.
- Try to avoid end joints wherever possible. To do that, you may want to buy 12' instead of 8' board, depending on your room size.
- If end joints can't be avoided, stagger them so they all don't fall at one end of the room.

Your DensArmor/DensArmor Plus should be stored flat, indoors, away from moisture and temperature extremes, until you're ready to use it. As soon as possible after joint treatment is thoroughly dry, all surfaces should be sealed or primed.

2. Estimate

Once you've determined how much DensArmor/DensArmor Plus you'll need, you can use the charts on the next page to estimate for nails, joint compound and tape.

Note: If you're applying drywall to masonry walls, see "Masonry" section for additional materials.

How Much Board Do You Need?

First, figure out the wall and ceiling areas.

Width of the room x Length of the room = Ceiling area
 (Width + Length) x 2 x Height of the room = Wall area

For example, a 12' x 16' x 8' room has a wall/ceiling area of 640 sq. ft. (Ceiling area: 12 x 16 = 192;

Wall area: (12 + 16) x 2 x 8 = 448; 192 + 448 = 640.)

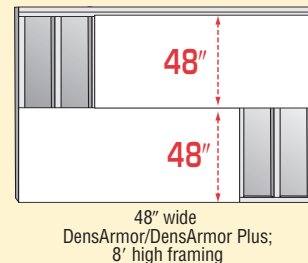
Look at the Room Measurement Table for a quick reference. Measure door and windows area and subtract their square footage from the total square footage to obtain net room area. Then refer to the Panel Coverage Table to locate the number of wallboard panels required for the room. Be sure to allow 10% to 15% overage for cutting and piecing.

Room Measurement Table

	4'	5'	6'	7'	8'	9'	10'	11'	12'	13'	14'	15'	16'
8'	224	248	272	296	320	334	368	392	416	440	464	488	512
9'	244	269	294	319	344	369	394	419	444	469	494	519	544
10'	264	290	316	342	368	394	420	446	472	498	524	550	576
11'	284	311	338	365	392	419	446	473	500	527	554	581	608
12'	304	332	360	388	416	444	472	500	528	556	584	612	640
13'	324	353	382	411	440	469	498	527	556	585	614	643	672
14'	344	374	404	434	464	494	524	554	584	614	644	674	704
15'	364	395	426	457	488	519	550	581	612	643	674	705	736
16'	384	416	448	480	512	544	576	608	640	672	704	736	768

Panel Coverage Table (in sq. ft. of wall area)

	1 Panel	2 Panels	3 Panels	4 Panels	5 Panels	6 Panels
4' x 8' Panel	32	64	96	128	160	192
4' x 9' Panel	36	72	108	144	180	216
4' x 10' Panel	40	80	120	160	200	240
4' x 12' Panel	48	96	144	192	240	288
4' x 14' Panel	56	112	168	224	280	336
4' x 16' Panel	64	128	192	256	320	384



Estimating Drywall Nails

Joist/Stud width (on center)	DensArmor®/DensArmor Plus™ Thickness	Drywall Nails	Approx. lbs. of nails per 1000 sq. ft. of drywall
16"	½"	1½" coated	5¼ lbs.
24"	⅝"	1⅞" coated	5¼ lbs.

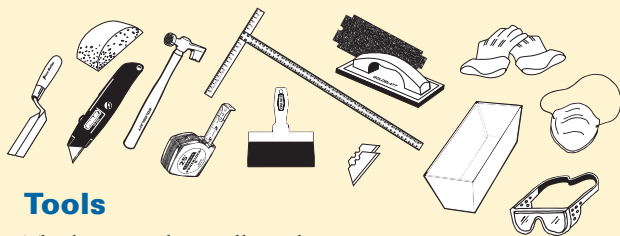
Estimating Joint Compound and Tape

DensArmor/DensArmor Plus Drywall Sq. Ft.	All-Purpose Joint Compound	Estimated Amount of ToughRock® Tape
100-200 sq. ft.	12 lb. Pail	two 60' rolls
500 sq. ft.	48 lb. Ctn.	one 250' roll
800 sq. ft.	61.7 lb. Pail	two 250' rolls

Plan/Apply

Materials

- DensArmor® and DensArmor Plus™ Paperless Interior Drywall (Use our online calculator to estimate the number of pieces you'll need for your product at www.stopfeedingmold.com)
- Fasteners
- Cornerbeads (if needed)
- Joint Compound
- Paper or fiberglass tape for the joints
- Primer and paint or other wall covering



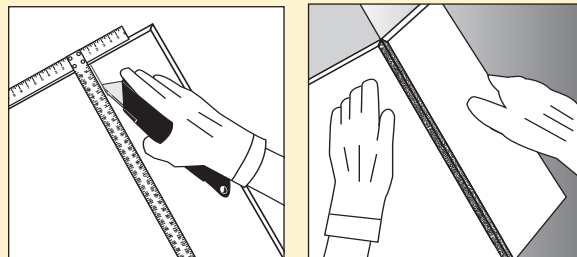
Tools

The basic tools you'll need are:

1. Drywall knife with heavy-duty blade
2. Drywall hammer or regular crown-headed carpenter's claw hammer
3. 4' T-square or steel straightedge
4. Steel tape measure
5. Keyhole or utility saw
6. Joint finishing knives—5" and 10" blades
7. Plastic pan for joint compound
8. Sandpaper, medium texture (80 to 100 grit) and sanding block for joint finishing
9. Damp sponge
10. Pencil
11. Safety glasses
12. Dust mask
13. Protective gloves

CAUTION: *When working with tools, always wear approved safety glasses.*

Follow these standard work practices: Wear a loose-fitting, long-sleeved shirt and long pants, protective gloves and eye protection (goggles or safety glasses with side shields). Wear a dust mask when sanding. Additional protection may be needed when very dusty. Do not use a power saw.



Cut

Using your T-square or straightedge and drywall knife, score the gypsum board completely through the facer. Then use firm, even pressure to snap the board along the cut. Fold back the board, and use the knife to cut the back facer. Smooth rough edges.

Receptacle Openings, Etc.

Carefully measure openings for receptacles, switches, etc. from the edge and end of the board, and mark guidelines on the face. Use a keyhole saw to cut the openings. Make sure your measurements and cuts are accurate, or the cover plate you install later on will not conceal the hole.

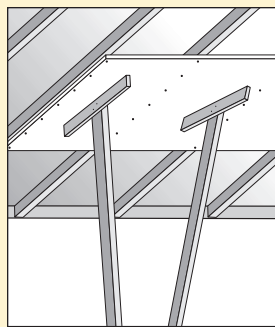
Installation

Installation

DensArmor®/DensArmor Plus™ is installed in a similar manner to traditional paper-faced wallboard. DensArmor/DensArmor Plus should be installed according to the most current versions of Gypsum Association Publication GA-216-2004 “Application and Finishing of Gypsum Panel Products” and ASTM C 840. “Standard Specification for Application and Finishing of Gypsum Board for Non-Fire Rated Construction.” For best results, abut DensArmor/DensArmor Plus against regular paper-faced wallboard only at inside or outside corners to eliminate transitions in the field of a wall or ceiling. Adjust fastening tools to insure that the fasteners are not over-driven through the face of the board. Nails and screws should be driven with the heads slightly below the surface of the panel.

Ceilings

For ceilings, always use nails or screws (mechanical attachment). Nails or screws should be spaced at



7" intervals around the edges (about $\frac{3}{8}$ " from the edge), and through the center of the boards. Make sure you hit the center of the ceiling joists. For joists that are 16" o.c., $\frac{1}{2}$ " or $\frac{5}{8}$ " DensArmor Plus may be applied. $\frac{1}{2}$ " DensArmor Plus may be applied to 24" o.c. joists as long as it is

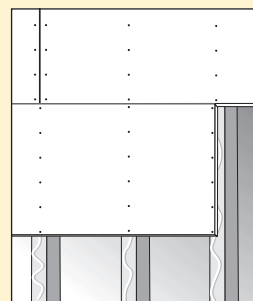
installed across or perpendicular to ceiling joists as shown. For DensArmor, joist spacing must be a maximum of 16" o.c.

All nails should be “dimpled”. That is, drive the nails firm enough to indent the board’s facer without tearing it. It’s best to install board on the ceiling before installing board on the wall.

It also helps to have a pair of T-braces to help hold the board in place while it’s being nailed. A good T-brace can be made by nailing a 2' piece of 1 x 4 onto the end of a 2 x 4. Install boards across (perpendicular to) ceiling joists.

Walls

Nail the board around the edges (about $\frac{3}{8}$ " from the edge), and along each end. Space fasteners at 8" intervals at the ends, edges and field of the panel. Fasteners should be driven so that the heads are slightly below the surface.



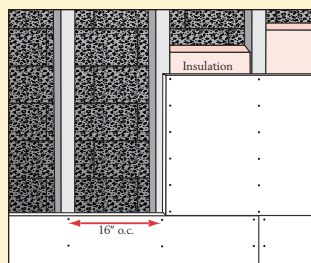
Many professionals prefer screws to nails for their extremely strong holding power. For screw application, use only drywall screws.

Install boards horizontally, running across the wall studs. Start with the top board and work down. Push the board firmly against the ceiling and nail.

If your ceiling is higher than 8'1", or the wall is 4' wide or less, boards may be installed vertically.

Masonry

If you’re installing gypsum board on a masonry wall, first cut 1 x 2 or 2 x 2 furring strips to reach from the floor to the ceiling. (2 x 2 strips are good if you plan



to back your drywall with insulation.) Cut enough strips to go around the room when nailed vertically on 16" centers. Nail the strips on the walls, 16" o.c., using masonry nails. (Check with your

home supply dealer for the proper nails for your kind of masonry wall.) When the furring strips are up, rigid foamboard insulation and fiberglass insulation can be cut and placed between strips. Then treat the furring as you would ordinary wall studs, using the application methods described in the “Walls” section on the previous page.

Metal Corners

To protect outside corners from edge damage, install metal cornerbeads after you’ve installed the drywall. Nail the metal cornerbead every 5" through the gypsum board, into the wood framing.

Finishing

The finishing and sanding of DensArmor®/DensArmor Plus™ should be performed in accordance with the most current version of Gypsum Association Publication GA-214-96 “Recommended Levels of Gypsum Board Finish.” DensArmor Plus panels may be finished with either paper tape embedded with all purpose joint compound or (for a paperless surface) with fiberglass mesh tape and setting compound. Because of the enhanced properties of DensArmor/DensArmor Plus, drying times for the joint and setting compounds may vary slightly. It is essential to allow each coat of compound to dry thoroughly before applying additional coats of compound. Care should be taken to ensure that all joints and fasteners are properly and adequately sanded to provide a smooth transition between the compound and the face of the board.

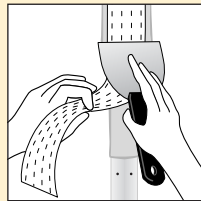
Option 1—Paper Tape

Joints

Finish the joints in four steps. First, apply a coat of joint compound to the joints. Then, immediately imbed ToughRock® tape in the joint compound, smooth out bubbles and allow to dry. Next, apply two successive finish coats over the tape and allow to dry between coats. Sand when dry.

Bedding

With your 5" joint finishing knife, apply a smooth, full, even coat of joint compound into the recess created by the tapered edges of adjoining boards.



Center a strip of ToughRock tape over the joint, and press it firmly into the wet bedding compound with your drywall knife at a 45° angle. Press hard enough to squeeze a little compound out from the edge of the tape, but leave enough compound for a good bond. Let dry about 24 hours.

Taping and Finishing

When the taped bedding coat is dry, apply your first finish coat of ToughRock® All Purpose Ready-Mix™ Joint Compound. Extend this coat a few inches beyond the tape, and feather the edges. Let dry about 24 hours. Then apply a second finish coat with your 10" joint

finishing knife. Extend this coat 1½" wider than the first finish coat. Wait 24 hours, and sand lightly with your sanding block and medium grit sandpaper. **Don't sand down to the tape.** Wipe off dust with a damp sponge.

Option 2—Fiberglass Tape

To further reduce the potential for mold growth and maintain a completely paperless wall surface, fiberglass joint tape should be used to finish the joints of DensArmor/DensArmor Plus. A setting-type compound is required for at least the first coat over fiberglass mesh tape. Additional coats prescribed by the desired level of finish should be a drying-type (powder or ready-mixed) joint compound. Inside corners may be finished with vinyl corner beads to maintain a paperless wall.

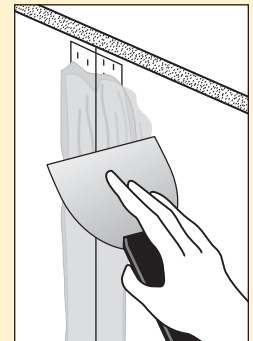
For either tape option, continue with installation

Fastener Heads

Draw your 5" joint finishing knife across the fastener head to make sure it is below the surface of the board. Apply your first coat of All Purpose Joint Compound so that it just fills the nail dimple. Don't use excess pressure when applying, or your knife may scoop compound from the dimple. Let the first coat dry. At least one more coat will be required. A third coat of Joint Compound may be needed. Sand lightly after each coat dries.

Butt Joints

Butt joints (square cut edge joints) are finished the same way as regular joints, with one exception. Because butt joints are not tapered, you need to be careful not to allow the joint compound and tape to build up any more than necessary. To reduce the effect of the build-up, feather the edges of your finish coats wider than you would for a regular joint.



Outside Corners

Be sure the metal cornerbead is attached firmly (see “Metal Corners” in previous section). Use your 8” knife to spread All Purpose Joint Compound about 3”-4” past metal corner. Be sure to cover the metal edges. Let dry 24 hours. Apply second coat with your 10” knife. Feather edges 2”-3” beyond first coat. Sand lightly when dry. A third coat may be needed.

Inside Corners

Cut a strip of drywall tape the length of the corner you’re going to finish. Crease the tape down the center. Use your 5” knife to spread Joint Compound about 1½” on both sides of the corner. With the knife press the tape into the corner. Use enough pressure to squeeze some compound from the edge of the tape, but leave enough compound to form a good bond. Feather the compound 2” from the edge of the tape. Let dry 24 hours, finishing only one side at a time. Let dry, finish other side of corner. Let dry, then sand corner. Be careful not to let the compound build up in the very corner of the tape. **Excess compound in the corner could cause hairline cracks.**

Now you’re ready to prime and paint!

A mock-up or test wall should be used to ensure the proposed decorative finish will produce an acceptable result. Proper installation, finishing and priming are critical. Skipping a step, such as the application of a primer or taking shortcuts, such as not using proper sanding techniques, will negatively impact the quality of the final decorative finish.

For best results when painting DensArmor®/DensArmor Plus™, G-P Gypsum requires the use of a high quality, high build drywall primer/surfacer. Follow the application instructions of the primer manufacturer stated on the container. G-P Gypsum recommends that the high build primer be applied at a sufficient wet film thickness to ensure a dry film thickness that will produce acceptable results. Always use a test wall or mock-up because different application techniques, such as back rolling, and variations in wet film thickness (or mileage) may be required to offer pleasing results. The number of coats of finish paint and the total dry film thickness of the finish coats needed for acceptable results will depend on the paint used. The finish coats of paint must be applied according to the manufacturer’s label instructions.

Note that in critical light areas, flat paints applied over light textures tend to reduce joint photographing. The Gypsum Association recommends a Level 5 finish where gloss, semigloss, enamel or nontextured flat paints are specified or where severe lighting conditions occur. This highest quality finish is the most effective method to provide a uniform surface and minimize the possibility of joint photographing and of fasteners showing through the final decoration.

Wallcoverings

Because of the enhanced properties of DensArmor/DensArmor Plus, drying times for the wallcovering adhesives and primers may vary slightly. Some wallcoverings, such as an unbacked vinyl wallcovering, require a Level 5 finish as detailed in GA-214-96 when applied over DensArmor/DensArmor Plus. Avoid the use of wallcovering material over a Level 4 finish if the material is lightweight, contains a limited pattern, has a gloss finish or any combinations of these elements is present as detailed in GA-214-96. Always follow wallpaper and adhesive manufacturer’s installation instructions.

Because many factors, that are unrelated to the manufacturing of the panels, can affect the acceptability of the final finish results, G-P Gypsum makes no warranty, expressed or implied, regarding the finish results to be achieved with DensArmor®/DensArmor Plus™ paperless interior drywall.

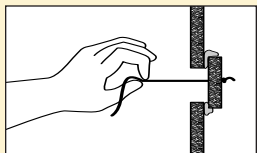
Repair

Tools

The materials and tools you'll need for most repairs are:

1. Setting-type or ToughRock® Ready-Mix™ All Purpose Joint Compound
2. Fiberglass mesh tape or drywall tape
3. DensArmor®/DensArmor Plus™ scraps
4. Fasteners (nails or screws)
5. Utility knife
6. 5" and 10" taping knives
7. Hammer
8. Safety glasses

Medium to Small Holes



1. Cut out a rectangle around damaged area with knife or keyhole saw.
2. Cut a scrap section of DensArmor/DensArmor Plus, with top and bottom slightly larger than the hole.

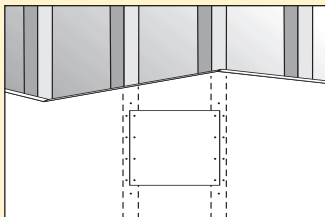
3. Place a piece of string through the center of scrap.
4. Apply Joint Compound to edges of scrap, then slide into hole.
5. Center scrap and pull tight until joint compound is set.
6. Cut string, fill hole with joint compound.
7. Additional finish coats may be necessary.

Dents and Gouges

1. Fill with ToughRock All-Purpose Ready-Mix Joint Compound or ToughRock Sandable Setting Compound.
2. Touch up with paint.

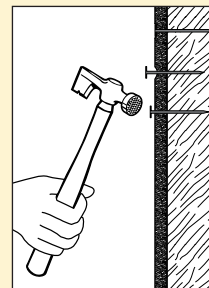
Large Holes

1. To patch larger holes, you may have to cut the gypsum board back to the studs to replace the entire damaged section.
2. Apply ToughRock tape and finish off with Joint Compound.



Nail Pops

1. Drive new nail about 1-2" above and below the one that has popped.
2. Push panel close to the stud while you "dimple" the two nails. (See Installation section for explanation of "dimpling.")
3. Remove loose material from dimpled areas, sand lightly.
4. Fill dimpled area with Joint Compound—let dry overnight.
5. If shrinkage occurs in drying, re-apply Joint Compound. When patch is dry, sand lightly.
6. Prime and texture or paint to match existing wall.



Cracks

For large cracks, use Joint Compound and drywall tape.

1. Sand the area about 6" on each side of the crack.
 2. Work Joint Compound down into crack.
 3. Center tape over the crack and press down firmly with a 5" drywall knife.
 4. Cover tape with a coat of Joint Compound. Smooth it out well beyond tape edges by feathering.
 5. Allow patch to dry overnight. Apply another coat of Joint Compound which extends 1½" wider than the last coat. Smooth edges, let patch dry. Sand lightly.
- Narrow cracks may be filled with Joint Compound alone. Use a stiff brush or screwdriver to remove loose material from the crack.
 - Dampen edges of the crack with water.
 - Fill deep cracks almost to the surface. Let dry, then add a thin coat of Joint Compound. Smooth out 2" on each side of crack, by feathering. Let dry. Sand smooth.

Do It Yourself

Garage

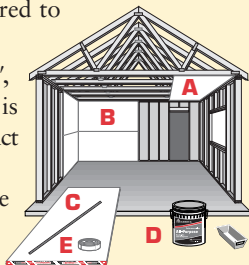
A DensArmor Plus™ 5/8" Fireguard®, available in 8' to 12' lengths, is used in garage walls and ceilings for improved fire resistance compared to 1/2" gypsum board.

B DensArmor®/DensArmor Plus 1/2", available in 8' and 12' lengths, is the normal wall and ceiling product for new homes and additions. DensArmor Plus also is available in 10' lengths. DensArmor Plus 5/8" Fireguard is preferred for ceilings for improved sag resistance.

C Cornerbead in 8' lengths protects outside corners from damage and gives straight and true corners.

D Joint Compound and other setting type compounds are available in various sized pails and boxes. Used for taping and finishing gypsum board. Typical usage: 2 (61 lb.) pails or boxes per 1000 square feet of gypsum board.

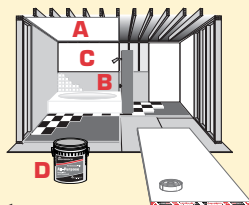
E If a paperless wall surface is desired, fiberglass joint tape should be used. Follow instructions regarding fiberglass joint tape under *Option 2—Fiberglass* in the Finishing Section. Paper joint tape can also be used to tape all joints and interior angles/corners. Typical usage: 350 lineal feet of tape per 1000 square feet of board.



Bathroom

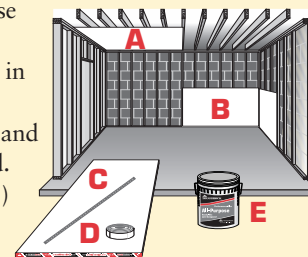
A DensArmor/DensArmor Plus 1/2" gypsum board is available in 8' and 12' lengths and is the normal wall and ceiling product for new homes and additions. DensArmor Plus also is available in 10' lengths.

B 1/4" and 1/2" DensShield® Tile Backer from Georgia-Pacific are a lightweight, easy to handle substrates that come in various sizes. This heavy-duty tile backer for ceramic tile is used for walls, ceilings, floors and countertops. Features a Lifetime Limited Warranty* when used in a residential tile installation. See complete warranty for details at www.densshield.com.



C DensArmor Plus board in 8' lengths is the normal product for bathrooms. DensShield tile backer is recommended for backing tile installations.

D ToughRock® All Purpose Ready Mix™ Joint Compound is available in various sized pails and boxes. Used for taping and finishing gypsum board. Typical usage: 2 (61 lb.) pails or boxes per 1000 square feet of gypsum board.



Basement

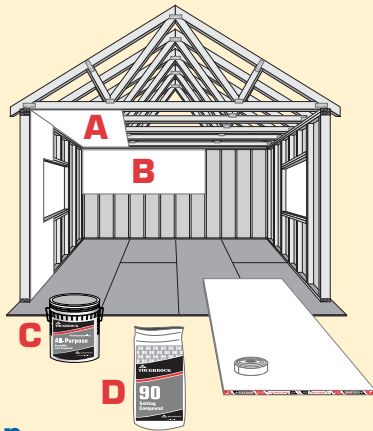
A DensArmor/DensArmor Plus 1/2", available in 8' and 12' lengths, is the ideal wall and ceiling drywall product for new homes and additions. DensArmor Plus also is available in 10' lengths.

B DensArmor Plus 5/8" Fireguard, available in 8' to 12' lengths, is recommended as an alternative to 1/2" gypsum board for improved acoustical isolation and fire resistance compared to 1/2" gypsum board.

C Cornerbead in 8' lengths protects outside corners from damage and gives straight and true corners.

D If a paperless wall surface is desired, fiberglass joint tape should be used. Follow instructions regarding fiberglass joint tape under *Option 2—Fiberglass* in the Finishing Section. Paper joint tape can also be used to tape all joints and interior angles/corners. Typical usage: 350 lineal feet of tape per 1000 square feet of board.

E ToughRock All Purpose Ready-Mix Joint Compound is available in various sized pails and boxes. Used for taping and finishing gypsum board. Typical usage: 2 (61 lb.) pails per 1000 square feet of gypsum board.**



Addition

- A** DensArmor Plus $\frac{5}{8}$ " Fireguard, available in 8' to 12' lengths, is the preferred substrate for ceilings and walls for improved fire resistance and sound isolation compared to $\frac{1}{2}$ " gypsum board.
- B** DensArmor/DensArmor Plus $\frac{1}{2}$ ", available in 8' and 12' lengths, is the typical wall and ceiling drywall product for new homes and additions. DensArmor Plus also is available in 10' lengths.
- C** Joint Compound is used for bedding tape, finishing joints, filling cornerbead, spotting nails and texturing. Typical usage: 2 (61 lb.) pails per 1000 square feet for joint taping and finishing and 15-50 lbs. per 1000 square feet when used for texturing.
- D** ToughRock® All Purpose Ready-Mix™ Joint Compound is available in various sized pails and boxes. Used for taping and finishing gypsum board. Typical usage: 2 (61 lb.) pails per 1000 square feet of gypsum board.**

GP DensArmor® Paperless Interior Drywall

A new generation drywall designed to be used as a replacement for traditional paper-faced drywall for residential interiors. Glass mat facings gives DensArmor its superior mold resistance when compared to regular paper-faced drywall.*

GP DensArmor Plus™ Paperless Interior Drywall

Like DensArmor, DensArmor Plus uses glass mat facings instead of paper to provide superior mold resistance. The combination of paperless surfaces and the addition of a moisture resistant core provides superior moisture- and mold-resistance when compared to traditional paper-faced drywall.*

ToughRock® All Purpose Ready-Mix™ Joint Compound

For finishing joints, nail heads and corners. Also can be used for some texturing, and for most repairs. Comes ready to use in 12 lb., 61 lb. pails and 48 lb. cartons.

ToughRock® Tape

For joint finishing, and major repairs.
75', 250' and 500' rolls.

ToughRock® Sandable Setting Compound

Quick setting joint compounds especially suited for repair work. Mix according to instructions on package. Comes in 18 lb. and 11kg. bags.

ToughRock® Setting Compound

* Please refer to installation recommendations and written warranty. Details available from G-P Gypsum Corporation.

** Recommended drywall taping knives: 4" wide for taping, 6" for the first finish coat, 12" for second finish coat.

*When tested, as manufactured, in accordance with ASTM D 3273.

