

ToughRock® Wallworks Guide

Your Guide to Planning, Applying, Installing, Finishing and

Repairing Your Walls and Ceilings with ToughRock Gypsum Board



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 gypsum board. Use the sketch as a guide to determine how much wallboard 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' gypsum board, instead of 8', 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 gypsum board 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 with a vinyl or oil base primer/sealer.

2. Estimate

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

If you choose the adhesive/nail-on method for wall installation (see installation instructions), you'll also need some gypsum board adhesive. Use 8 quart-sized tubes for each 1,000 sq. ft. of wallboard (1 tube to 4, 4' x 8' sheets; 1 tube to 2½, 4' x 12' sheets).

Note: If you're applying wallboard 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.)

Want help calculating the amount of materials you'll need for your project? Check out the ToughRock® Calculator at www.toughrock.com.

Simply enter the measurements of your room and the calculator will do the rest.

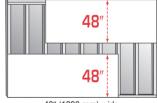
Look at the Room Measurement Table for a quick reference. Measure door and windows area and subtract their square footage from the total square footage to obtain net room area. Then refer to the Panel Coverage Table to locate the number of wallboard panels required for the room. Be sure to allow 10%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

Room Measurement Table

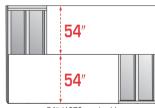
		4′	5′	6′	7′	8′	9′	10'	11'	12'	13′	14'	15 ′	16'
	8′	224	248	272	296	320	334	368	392	416	440	464	488	512
	9′	244	269	294	319	344	369	394	419	444	469	494	519	544
	10'	264	290	316	342	368	394	420	446	472	498	524	550	576
	11′	284	311	338	365	392	419	446	473	500	527	554	581	608
	12'	304	332	360	388	416	444	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



48" (1220 mm) wide Regular Gypsum Board; 9' (2.74 m) high framing



54" (1370 mm) wide ToughRock® Gypsum Board; 9' (2.74 m) high framing

Besides standard 4' widths, ToughRock® gypsum board is also available in a 54" width that eliminates the need for gap filler boards in horizontal applications when walls are 9' high (see illustration). Using 54" wide gypsum board when you have 9' ceilings reduces the number of seams you'll need to finish and cuts waste.

Plan/Apply

Estimating Gypsum Board Nails

Joist/Stud width (on center)	Wallboard Thickness	Gypsum Board Nails	Approx. lbs. of nails per 1000 sq. ft. of wallboard		
16"	1/2"	15/8" coated	51/4 lbs.		
24"	5/8"	11%" coated	51/4 lbs.		

Estimating Ready-Mix™ Joint Compound and Tape

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ToughRock® Wallboard Sq. Ft.	Georgia-Pacific Ready-Mix™ Joint Compound	Estimated Amount of GP Wallboard 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		



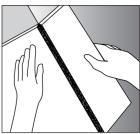
Tools

The basic tools you'll need are:

- 1. Wallboard knife with heavy-duty blade
- 2. Wallboard hammer or regular crown-headed carpenter's claw hammer
- 3. 4' T-square or steel straightedge
- 4. Steel tape measure
- 5. Kevhole 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. Caulking gun
- 11. Pencil
- 12. Safety glasses
- 13. Dust mask for sanding

<u>CAUTION:</u> When working with tools, always wear approved safety glasses. Always read and follow manufacturer's instructions when using adhesives.





Cut

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

Receptacle Openings, Etc.

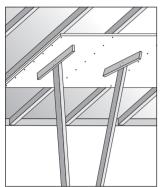
Carefully measure openings for receptacles, switches, etc. from the edge and end of the board, and mark guidelines on the face paper. Use a keyhole saw to cut the openings. Make sure your measurements and cuts are accurate, or the cover plate you install later on will not conceal the hole.



Installation

Ceilings

For ceilings, always use nails or screws (mechanical attachment) rather than the adhesive/nail-on method. Nails or screws should be spaced at 7" intervals around the edges (about 3%" 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" on center (o.c.), use 1/2" gypsum board. For 24" o.c. joists, use 5%" gypsum board or 1/2" ceiling board.

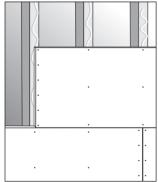


All nails should be "dimpled." That is, drive the nails firm enough to indent the board's face paper, without tearing the paper. It's best to install ceiling boards before wall boards. Because gypsum board is relatively heavy, and because you'll be positioning it overhead, it's a good idea to have a couple of friends help you.

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 1×4 onto the end of a 2×4 about an inch longer than the floor to ceiling height. Install boards across (perpendicular to) ceiling joists.

Walls

On walls, you can get a better looking job by using the adhesive/nail-on method. Use a caulking gun to put a 3/8" bead of gypsum board adhesive on the wall studs before installing the board. Then nail the board around the edges (about 3/8" from the edge), and along each



end. Space nails at 8" intervals, and dimple all nails. Test the board to see if it's tight. If it's loose, put a couple of nails in the center.

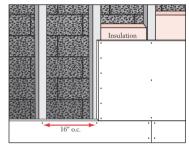
Many professionals prefer gypsum board screws to nails for their extremely strong holding power. For screw application, use only coated gypsum board screws (wood screws will tear the board), and a variable-speed power drill with a screwdriver bit.

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, keeping the first nail at least 7" from the interior ceiling angle.

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 wallboard 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 can be cut and placed between strips. Then treat the furring as you would ordinary wall studs, using the wallboard 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 wallboard. Nail the metal cornerbead every 5" through the gypsum board, into the wood framing.



Finishing

Joints

Finish the joints in four steps. First, apply a coat of Georgia-Pacific Ready-Mix[™] Joint Compound to the joints. Then, imbed Georgia-Pacific wallboard tape in the Ready-Mix 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 Ready-Mix Joint Compound into the recess created by the tapered edges of adjoining boards.

Center a strip of wallboard tape over the joint, and

press it firmly into the wet bedding compound with your wallboard 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 & Finishing

When the taped bedding coat is dry, apply your first finish coat of 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**. Be very careful not to sand or scratch the face paper of the wallboard. Wipe off dust with a damp sponge.

Nail Heads

Draw your 5" joint finishing knife across the nail head to make sure it is below the surface of the board. Apply your first coat of Ready-Mix 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 Ready-Mix Joint Compound may be needed. Sand lightly after each coat dries.

Butt Joints

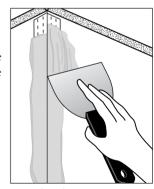
Butt joints (square cut edge joints) are finished the same way as regular joints, with one exception. Because butt joints are not tapered, you need to be careful not to allow the joint compound and tape to build up any more than necessary. To reduce the effect of the build-up, feather the edges of your 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 5" knife to spread Ready-Mix 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 wallboard tape the length of the corner you're going to finish. Crease the tape down the center. Use your 5" knife to spread Ready-Mix 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.

Texture

Before you apply any textured surface to wallboard, make sure all joints, nail heads and corners are finished properly. Clean all surfaces thoroughly, and apply a primer coat of white latex paint.

NOTE: It's very important that you prime surfaces well. Joints and nail heads may show through unprimed surfaces. It's also important to get a prime coat on finished gypsum board as soon after installation as possible. Gypsum board paper that is exposed to light for more than a few weeks could darken, and show through your textured surface.

Choose a texture that fits the decor you're planning for the room, and one you'll feel comfortable applying. Different textures require different tools and texture components. Use the examples below to choose a texture for your walls and ceilings.

After you have decided on a texture, cover floors, windows, etc. Apply texture to the ceiling first. When ceiling texture is finished, use a 10" putty knife to carefully scrape splatters from walls and floors before texture dries. Be careful not to break the face paper on gypsum boards. Always wear protective clothing.

Swirl

Tools: Stiff Brush, Clean Bucket

<u>Materials:</u> Georgia-Pacific Wall & Ceiling Texture or Georgia-Pacific Ready-Mix[™] Joint Compound (Coverage: 50 lb. bag, approx. 400-800 sq. ft.)



Directions: Mix Wall Texture or Ready-Mix Joint Compound according to the instructions on the bag or pail until it is the consistency of whipped cream. Spread on a uniform coating using your brush in a short or broad circular pattern. Experiment! You might even

want to try using a sponge to create your own effects. Let dry at least 48 hours.

Stipple



Tools: Stipple Paint Roller, Hand Extension. Roller Pan

Materials: Georgia-Pacific Wall & Ceiling Texture or Georgia-Pacific

Ready-Mix Joint Compound (Coverage: 50 lb. bag, approx. 400-800 sq. ft.)

<u>Directions:</u> Thin stipple material selected according to package instructions to a creamy consistency. Don't get it too thin, though, or your coverage won't be complete. Use the paint roller to spread the mixture in a uniform coat. Cover the complete ceiling in one application. Let dry about 48 hours.

Stomp

Tools: Stiff Round Brush with Extension Handle, Pan, Paint Roller

Materials: Georgia-Pacific Wall & Ceiling Texture or Georgia-Pacific Ready-Mix Joint Compound (Coverage: 50 lb. bag, approx. 400-800 sq. ft.; Ready-Mix–200-300 sq. ft.)



<u>Directions:</u> Mix Wall Texture according to package instructions until it has the consistency of thick whipped cream, or use thinned Ready-Mix Joint Compound from the bucket. Apply uniform coat with a paint roller. Use the round brush to "stomp" the material on the surface. Cover surface fully. Let dry about 48 hours. The stomp method is frequently used for textured ceilings.

Brocade

Tools: 10" Hand Trowel, 4" Putty Knife, Clean Bucket

Materials: Georgia-Pacific Wall & Ceiling Texture or Georgia-Pacific Ready-Mix Joint Compound (Coverage: 50 lb. bag, approx. 400-800 sq. ft.; Ready-Mix-200-300 sq. ft.)

<u>Directions:</u> Mix Wall Texture according to package instructions, until it is the consistency of mashed potatoes. Or, use Ready-Mix Joint Compound right out of the pail. Start in a corner, and work dawn and across the room, taking



areas 3' square at a time. Dab on large quantities of texture with your trowel, and brush over lightly to flatten peaks. Blend sections as you move from one area to the next. Allow several days to dry.

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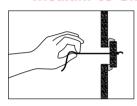
Repair

Tools

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

- 1. Georgia-Pacific Ready-Mix™ Joint Compound
- 2. Drywall tape
- 3. Gypsum board scraps
- 4. Gypsum board nails
- 5. Utility knife
- 6. 5" and 10" taping knives
- 7. Hammer
- 8. Safety glasses

Medium to Small Holes



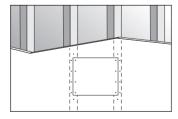
- 1. Cut out a rectangle around damaged area with knife or keyhole saw.
- 2. Cut a scrap section of gypsum board, with top and bottom slightly larger than the hole.
- 3. Place a piece of string through the center of scrap.
- 4. Apply Ready-Mix Joint Compound to edges of scrap, then slide into hole.
- 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 Georgia-Pacific Ready-Mix Joint Compound or Georgia-Pacific Sandable 90 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 gypsum board tape and finish off with Ready-Mix 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 Ready-Mix Joint Compound—let dry overnight.
- 5. If shrinkage occurs in drying, re-apply Ready-Mix Joint Compound. When patch is dry, sand lightly.
- 6. Prime and texture or paint to match existing wall.

Cracks

For large cracks, use Ready-Mix Joint Compound and drywall tape.

- 1. Sand the area about 6" on each side of the crack.
- 2. Work Ready-Mix 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 Ready-Mix Joint Compound. Smooth it out well beyond tape edges by feathering.
- 5. Allow patch to dry overnight. Apply another coat of Ready-Mix Joint Compound which extends 1½" wider than the last coat. Smooth edges, let patch dry. Sand lightly.
- Narrow cracks may be filled with Ready-Mix 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 Ready-Mix Joint Compound. Smooth out 2" on each side of crack, by feathering. Let dry. Sand smooth.



Do It Yourself

Garage

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

B ToughRock ½" gypsum board, available in 8' and 12' lengths, is the normal wall and ceiling product for new homes and additions. ToughRock ½" CD® Ceiling Board or ToughRock 5%" Fireguard gypsum board 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 Georgia-Pacific 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.
- E Paper joint tape is used to tape all joints and interior angles/corners. Typical usage: 350 lineal feet of tape per 1000 square feet of board.

Bathroom

- A ToughRock ½" gypsum board is available in 8' and 12' lengths and is the normal wall and ceiling product for new homes and additions.

 ToughRock ½" CD Ceiling Board or ToughRock 5%" Fireguard gypsum board is preferred for ceilings for improved sag resistance.
- B ½" DensShield Tile Backer, is a lightweight, easy to handle substrate that comes in various sizes including the 32" x 5' size. This heavy-duty backer board for ceramic tile is used for walls, ceilings, floors and countertops especially in areas of continuous moisture. Features a Lifetime Limited Warranty* from Georgia-Pacific Gypsum on any tile installation applied over DensSheild.
- C ToughRock ½" Moisture-Guard® gypsum board in 8' lengths is the normal product for bathrooms. DensShield tile backer is recommended for backing tile installations.
- Georgia-Pacific 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 ToughRock ½" gypsum board, available in 8′, 10′, and 12′ lengths, is the typical wall and ceiling drywall product for new homes and additions.



- B ToughRock 5/8" Fireguard gypsum board, 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.
- Paper joint tape is used to tape all joints and interior angles/corners. Typical usage: 350 lineal feet per 1000 square feet of gypsum board.
- E Georgia-Pacific 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 ToughRock 5/8" Fireguard gypsum board, available in 8' to 12' lengths, is the preferred substrate for ceilings and walls for improved fire resistance and sound isolation compared to 1/2" gypsum board.
- **B** ToughRock ½" gypsum board, available in 8' and 12' lengths, is the typical wall and ceiling drywall product for new homes and additions.
- Georgia-Pacific All-Purpose 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 Georgia-Pacific 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.**
- * Please refer to installation recommendations and warranty. Details available from Georgia-Pacific Gypsum.
- ** Recommended drywall taping knives: 4" wide for taping, 6" for the first finish coat, 12" for second finish coat.



Georgia-Pacific Gypsum Products

Georgia-Pacific 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.

Georgia-Pacific Wallboard Tape

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

Georgia-Pacific Wall and Ceiling Texture

For texturing walls and ceilings. Mix according to instructions on the label for texture you wish to create. 50 lb. bag covers from 200-1000 sq. ft. depending on application method and texture style.

Georgia-Pacific 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.

SALES INFORMATION AND ORDER PLACEMENT

U.S.A. Midwest: **1-800-876-4746** West: **1-800-824-7503**South: **1-800-327-2344** Northeast: **1-800-947-4497**

CANADA Canada Toll Free: 1-800-387-6823

Quebec Toll Free: 1-800-361-0486

TECHNICAL INFORMATION

Georgia-Pacific Gypsum Technical Hotline U.S.A. and Canada: **1-800-225-6119** www.gpgypsum.com

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LIMITATION OF REMEDIES

AND DAMAGES Unless otherwise stated in our written warranty for these products, 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 (10) days after discovery of a product defect/circumstance giving rise to a claim.

CAUTION: For product fire, safety and use information, go to qp.com/safetyinfo.

HANDLING AND USE CAUTION:

This product contains fiberglass. Fibers and dust may be released from this

product during normal handling and may result in skin, eve and respiratory irritation. Avoid breathing dust and contact with the skin and eves. Follow these standard work practices: Wear a loose-fitting, long-sleeved shirt and long pants, protective gloves and eve protection (goggles or safety glasses with side shields). Wear a dust mask when sanding. Additional protection such as NIOSH-approved dust mask may be needed in poorly ventilated areas or when very dusty. For Material Safety Data Sheet or additional information, call 1-800-225-6119 or visit www.gpgypsum.com.

FIRE SAFETY CAUTION Passing a fire test in a controlled laboratory setting and/or certifying or labeling a product as having a one-hour, twohour, or any other fire resistance or protection rating and, therefore, as acceptable for use in certain fire rated assemblies/systems, does not mean that either a particular assembly/system incorporating the product, or any given piece of the product itself, will necessarily provide one-hour fire resistance, two-hour fire resistance, or any other specified fire resistance or protection in an actual fire. In the event of an actual fire, you should immediately take any and all actions necessary for your safety and the safety of others without regard for any fire rating of any product or assembly/system.

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