

CONTRACTOR'S SUBMITTAL TRANSMITTAL
 5ND LANTDIV 4-4355/3 (Rev. 6/76)

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Full

FROM CONTRACTOR

Trader Construction Company

TO

Lockwood Greene/Six Associates

CONTRACT NO.

81-C-1766

TRANSMITTAL NO.

77A

DATE

May 11, 1984

PROJECT TITLE AND LOCATION

Public Works
 MGB
 Camp Lejeune, N.C.

CONTRACTOR USE ONLY

*List only one specification division per form.

List only one of the following categories on each transmittal form, and indicate which is being submitted

Contractor Approved

OICC Approval

Deviation/Substitution For OICC Approval

REVIEWER USE ONLY

****ACTION CODES**

- A-Approved
- D-Disapproved
- AN-Approved as noted
- RA-Receipt acknowledged
- C-Comments
- R-Resubmit

ITEM NO.	PROJ. SPEC. SECT. & PARA. and/or PROJ. DWG. NO.	ITEM IDENTIFICATION (Type, size, model no., Mfg. name, dwg. or brochure number)	NO. OF COPIES	REVIEWER USE ONLY	
				ACTION CODES	REVIEWER'S INITIALS CODE AND DATE
144	09250	Gypsum Wallboard			
	1.2.1	Catalog data, gypsum board, fasteners, joint treatment materials, adhesive, trim	7	A/C	A.B. 21 May 84
	1.2.2	Certificate of Conformance, fasteners	7	A	
		Metal or plastic trim	7	C	
		Control joints	7	A	
			7	A	

CONTRACTOR'S COMMENTS

ALL ITEMS ARE UNDERLINED

Cover Filed
 6-11-84

COPY OF TRANSMITTAL AND SUBMITTALS TO ROICC

ROICC, Camp Lejeune, N.C.

CONTRACTOR REPRESENTATIVE (Signature)

DATE RECEIVED BY REVIEWER

5/16/84

FROM (Reviewer)

Six Associates, Inc.

TO

Trader Construction Co.

- Submittals are returned with action indicated. Approval of an item does not include approval of any deviation from the contract requirements unless the contractor calls attention to and supports the deviation.
- Submittals are forwarded to LANTDIV with A-E recommendations indicated in REVIEWER USE ONLY Section and in comments below on ONE COPY of the transmittal form.

REVIEWER'S COMMENTS

Note that no data was submitted for fiberglass mesh reinforced concrete board which is to be used at showers.

A certificate of conformance was not included in this submittal. This is not the first time this has happened. Possibly the Contractor does not understand Certificate of Conformance requirements.

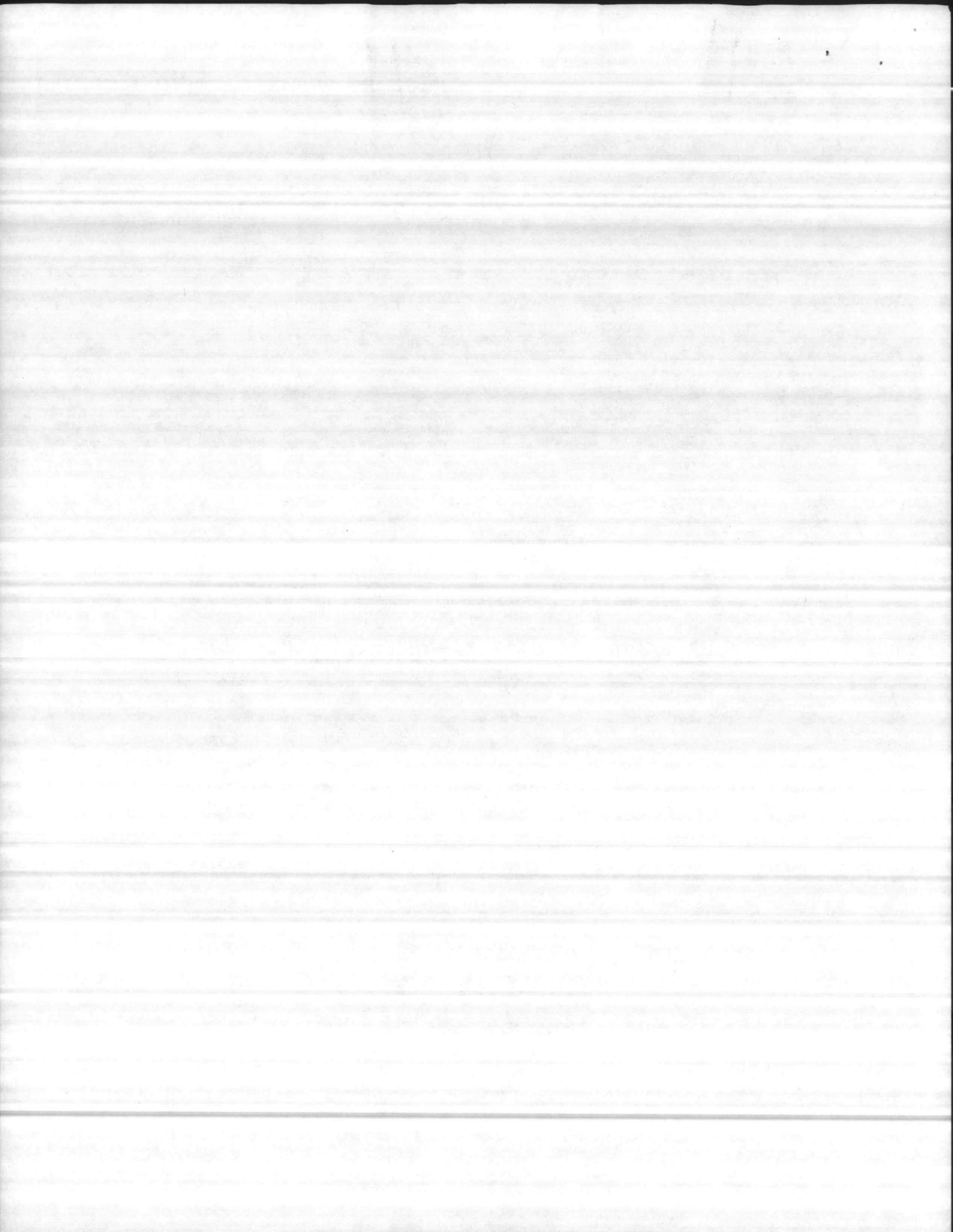
COPIES TO:
 ROICC (2) ✓
 LANTDIV (1)
 A-E (1)

DATE

5/23/84

SIGNATURE

A.B. [Signature]



description and utility

There is only one SHEETROCK—the brand of gypsum panels for interior wall and ceiling surfaces developed and improved by United States Gypsum. This product, in the last quarter-century, has revolutionized construction—to the point that today more than 90% of all new residential buildings are finished with gypsum panels. Systems using SHEETROCK Brand Panels now have gained the same acceptance in commercial building.

SHEETROCK is a brand of mill-fabricated gypsum panel composed of a fire-resistant gypsum core encased in a heavy natural-finish paper on the face side and a strong liner paper on the back side. The face paper is folded around the long edges to reinforce and protect the core, and the ends are square-cut and finished smooth. In SHEETROCK Brand SW Gypsum Panels, an exclusive rounded edge design strengthens the joint and reduces imperfections in finishing.

Gypsum panels are produced in specialized forms for various applications. Complementing these is the industry's broadest line of accessories, adhesives and joint treatment materials to provide complete partition, ceiling and floor assemblies. This catalog covers these products in five groups: (1) Gypsum Panel Products; (2) Trim Accessories; (3) Structural Accessories; (4) Screws and Adhesives; (5) Joint Treatment and Texture Products. A general specification appears on pages 10 to 12; performance and specification of assemblies using these components are covered in pertinent U.S.G. System Folders.

Interior walls and ceilings built with SHEETROCK Brand Panels gain a durable surface suitable for any type of decorative treatment and for repeated decoration during the life of the building. Joints between adjacent panels may be reinforced and concealed with a U.S.G. joint treatment system, or may be featured by leaving exposed or covering with decorative mouldings.

Dry Construction—factory-fabricated gypsum panels eliminate excessive moisture in construction.

Speed—Panels are easily cut and quickly applied.

Quick Decoration—essentially a "dry" material, gypsum panels permit painting or other decoration, and the installation of metal or wood trim, almost immediately.

Fire Protection—the gypsum core will not support combustion or transmit temperatures greatly in excess of 212°F. until completely calcined—a slow process. See U.S.G. Construction Selector SA-100 for fire-resistance ratings.

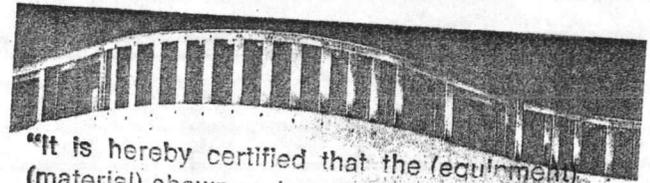
Crack Resistance—with joints reinforced by one of the U.S.G. joint systems, SHEETROCK Brand SW Panels form walls and ceilings exceptionally resistant to cracks caused by frame movement, vibration or minor settlement.

Non-Warping—expansion or contraction under normal atmospheric changes is negligible and does not cause harmful warping or buckling.

Availability—over 20 strategically located U.S.G. operating plants produce and/or stock the gypsum panel materials described here. Special distribution centers, in addition to these plants, increase total service efficiency to major markets and rural areas from coast to coast. All standard or specialty gypsum panel products may be considered readily available and easily procured upon short notice.

general limitations

1. Exposure to excessive or continuous moisture and extreme temperatures should be avoided.
2. Must be adequately protected against wetting when used as a base for ceramic or other wall tile (see foil-back panel limitation). SHEETROCK Brand W/R Gypsum Panels are the recommended product for this purpose in partitions.
3. Maximum spacing of framing members: $\frac{1}{2}$ " and $\frac{5}{8}$ " gypsum panels are designed for use on framing centers from 16" to 24"; $\frac{3}{8}$ "



"It is hereby certified that the (equipment) (material) shown and marked in this submission is that proposed to be incorporated into

Contract Number N32470-81-C-1766 in compliance with the Contract drawings and specifications, can be installed in the allocated spaces, and is submitted Government approval.

Certified by D.S.
Date 5-11-84

and $\frac{1}{4}$ " panels, on centers up to 16". In both walls and ceilings, when $\frac{1}{2}$ " or $\frac{5}{8}$ " gypsum panels are applied across framing on 24" centers and joints reinforced, headers are not required. $\frac{3}{8}$ " and $\frac{1}{4}$ " SHEETROCK Brand Panels not recommended for use on steel framing nor as base for water-based texturing materials. For this finish, $\frac{1}{2}$ " or $\frac{5}{8}$ " gypsum panels are applied across framing. See pertinent system folders for recommended framing spacing.

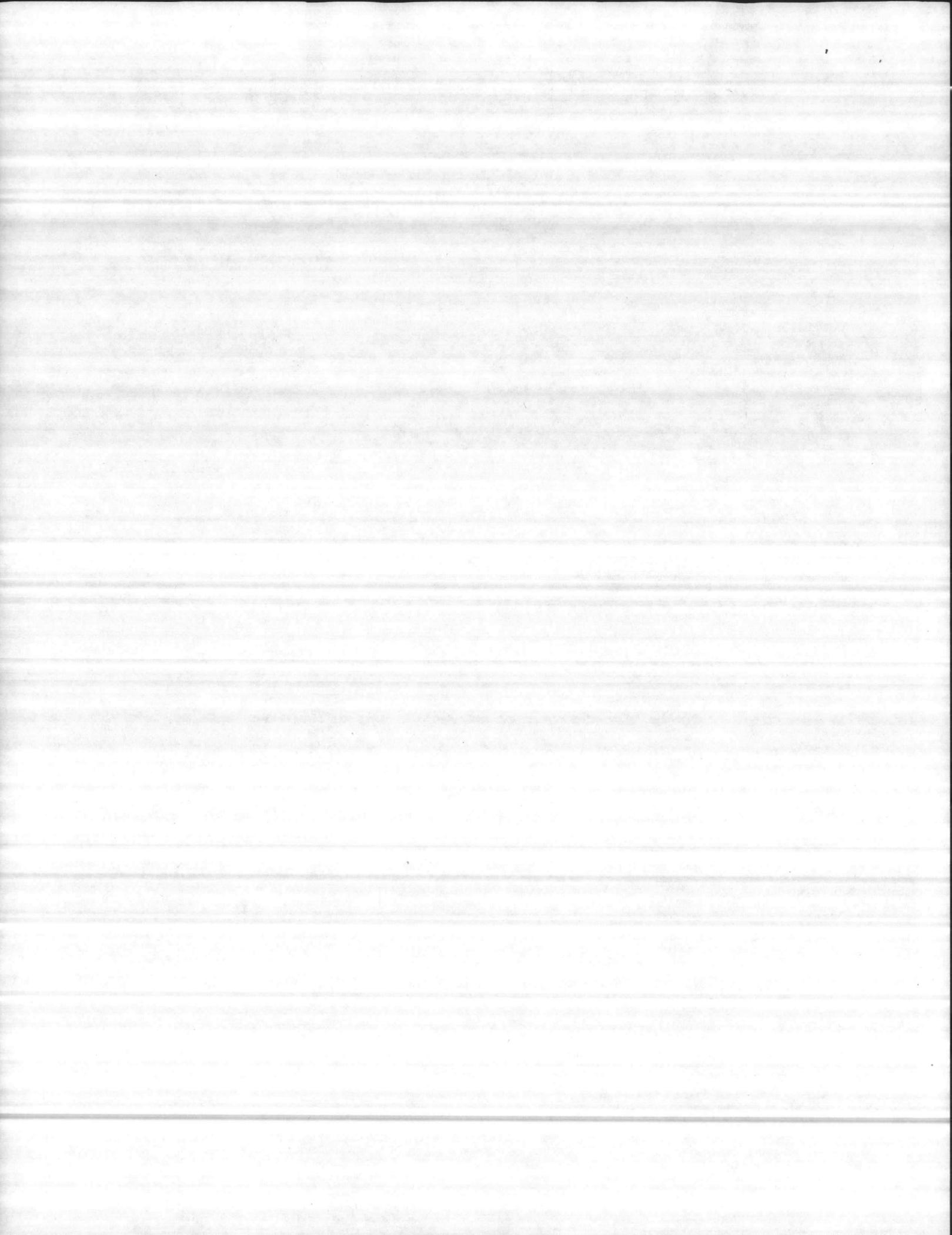
4. Application of SHEETROCK Brand Panels over $\frac{3}{4}$ " wood furring applied across framing is not recommended since the relative flexibility of the furring under impact of the hammer tends to loosen nails already driven. Furring should be 2"x2" minimum (may be nom. 1"x4" if panels are to be screw-attached).
5. The application of gypsum panels over an insulating blanket, that has first been installed continuously across the face of the framing members, is not recommended. Blankets should be recessed and the blanket flanges attached to sides of studs or joists.
6. To prevent objectionable sag in new gypsum panel ceilings, the weight of overlaid unsupported insulation should not exceed 1.3 psf for $\frac{1}{2}$ " thick panels with frame spacing 24" o.c.; 2.2 psf for $\frac{1}{2}$ " panels on 16" o.c. framing and $\frac{5}{8}$ " panels 24" o.c.; $\frac{3}{8}$ -in. thick panels must not be overlaid with unsupported insulation. A vapor barrier should be installed in all exterior ceilings, and the plenum or attic space properly vented. In winter or cold climates, a polyethylene vapor barrier should not be used unless the insulation is installed prior to ceiling panels.

Water-based texturing materials applied to ceilings should be completely dry before insulation and vapor barrier are installed. Under most conditions, drying takes several days; i.e., 10% r.h. and 90°F. conditions require 1.5 days; 90% r.h. and 90°F conditions, 10.5 days; 30% r.h. and 60°F. conditions, 5.3 days.

7. To improve fastener concealment where gypsum panel walls and ceilings will be subjected to severe artificial or natural side lighting and be decorated with a water-based paint, apply a good quality alkyd (oil) based primer/sealer prior to decoration. However, when using this procedure, care should be taken to avoid roughening the surface paper if sanding is used to smooth the joint compound.

technical data

SHEETROCK Brand Gypsum Panels comply with Federal Specification SSI-30D; ASTM C36. Thermal coefficient of expansion (unrestrained): 9.0×10^{-6} in. per in. per deg. F. (40°—100°F); hygrometric coefficient of expansion (unrestrained); 7.2×10^{-6} in. per % r.h. (5%—90% r.h.). Surface burning characteristics: flame spread 15, fuel contributed 15, smoke developed 0.



types and functions

1. Gypsum Panel Products

SHEETROCK Brand Regular Gypsum Panels have long edges tapered on the face side to form a shallow channel for joint reinforcement. Made in four thicknesses for specific purposes:

- 5/8", recommended for the finest single-layer drywall construction. The greater thickness provides increased resistance to fire and transmission of sound. Recommended for ceilings when a water-based texturing material will be used.
- 1/2", for single-layer application in residential construction.
- 3/8", lightweight, applied principally in the double wall system over wood framing and in repair and remodel work.
- 1/4", a lightweight, low-cost utility gypsum panel, used as base layer for improving sound control in double-layer steel and wood stud partitions and for use over old wall and ceiling surfaces. Also for forming curved surfaces with short radii.

Width: 4 ft.; length: 8, 9, 10, 12 or 14 ft. (except 1/4", available in 8 and 10-ft. lengths only); edges; tapered; finish: natural-finish face paper, suitable for paint or other decoration.

SHEETROCK Brand SW Gypsum Panels have an exclusive eased-edge design to help minimize ridging or beading and other joint imperfections and help compensate for extremes of temperature and

Where to use SHEETROCK Brand Gypsum Panels

"It is hereby certified that the (equipment) (material) shown and marked in this submittal is that proposed to be incorporated into Contract Number N62470 81-C-17664 in compliance with the Contract drawings and specifications, and is submitted for approval of the Government. This is accomplished by pre-filling gypsum panel joints with DURABOND 90 Joint Compound, a formulation which chemically hardens in about 1/2 hours, providing a maximum bond and minimum shrinkage. The edge contour eliminates the need to crown joints and no more compound is required than with regular panels. Taping and other application procedures are conventional.

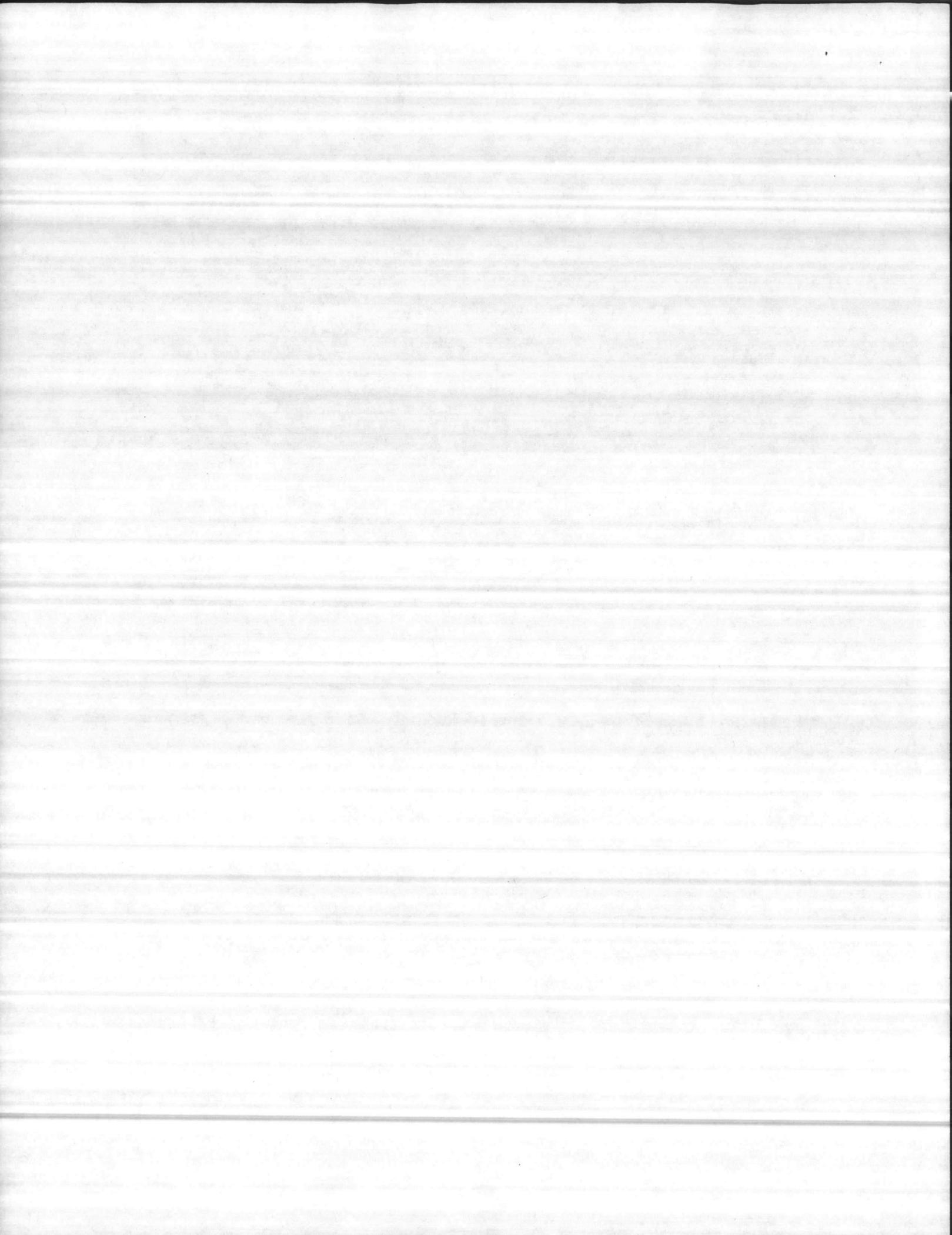
Except for the rounded edge, SW Panels are tapered like, and otherwise identical to, regular tapered-edge gypsum panels. Made in 5/8", 1/2" and 3/8" thicknesses.

SHEETROCK Brand FIRECODE "C" Gypsum Panels, made in 5/8" and 1/2" thicknesses, combine all advantages of regular panels with added resistance to fire exposure; comply with ASTM C36 for type X gypsum board. FIRECODE "C" panels provide improved fire protection as the result of a specially formulated core containing special mineral materials. FIRECODE panels available only in 5/8" thickness.

Systems using these gypsum panels have qualified for fire ratings of up to 2 hours in walls, 3 hours in ceilings, 4 hours for column protection. See U.S.G. Construction Selector for tested assemblies.

construction	(type)→	Reg-ular	Regular and SW		FIRECODE		FIRECODE "C"		Foil-Back		TEXTONE Vinyl Panels	W/R Panels†
	(thickness)→	1/4"	3/8"	1/2&3/8"	5/8"	1/2"	5/8"	3/8"	1/2&3/8"	3/8", 1/2" or 5/8"	1/2" & 5/8"	
WALLS												
Exterior Walls—Single Layer masonry (furred) wood framing rigid insulation board				X	X	X	X	X	X			X
				X	X	X	X	X	X			X
				X	X	X	X	X	X			X
Exterior Walls—Double Layer masonry (furred) base finish wood framing base finish				X	X	X	X	X	X		X	
	X	X	X	X	X	X	X	X	X		X	
	X	X	X	X	X	X	X	X	X		X	
Interior Walls—Single Layer over existing walls masonry (furred) wood framing metal framing masonry & concrete (direct)		X		X	X	X	X	X	X		X	
				X	X	X	X	X	X		X	
				X	X	X	X	X	X		X	
Interior Walls—Double Layer masonry (furred) base finish wood framing base finish metal framing base finish				X	X	X	X	X	X		X	
				X	X	X	X	X	X		X	
	X	X	X	X	X	X	X	X	X		X	
	X	X	X	X	X	X	X	X	X		X	
	X	X	X	X	X	X	X	X	X		X	
	X	X	X	X	X	X	X	X	X		X	
CEILING												
Ceilings—Single Layer over existing ceiling wood framing metal framing	X	X	X	X	X	X	X	X	X			
		X	X	X	X	X	X	X	X			
		X	X	X	X	X	X	X	X			
Ceilings—Double Layer wood framing base finish metal framing base finish		X	X	X	X	X	X	X	X			
		X	X	X	X	X	X	X	X			
		X	X	X	X	X	X	X	X			
Ceilings—Acoustical Base over suspended metal grillage over channel		X	X	X	X	X	X	X	X			
		X	X	X	X	X	X	X	X			

†Recommended as a base for ceramic or other tile.

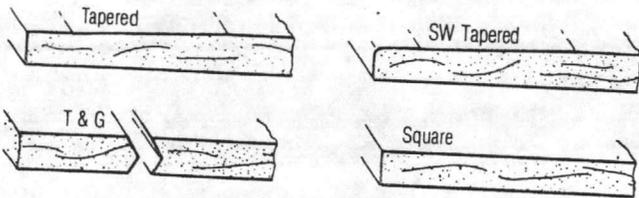


"It is hereby certified that the (equipment) (material) shown and marked in this submittal is that proposed to be incorporated into Contract Number N62470. 81-C-1765 in accordance with the Contract drawings and specifications, can be installed in the allocated space, and is submitted for approval.

Certified by D.S.
Date 5-11-81

Pre-filling joints of SHEETROCK Brand SW Gypsum Panels

Gypsum Panel Products—Types of Edges



Limitations (also refer to General Limitations, page 1): (1) In order to attain fire-resistance ratings, the construction of the partition and/or floor and ceiling assemblies must conform to the panel designs as tested at the indicated fire testing facilities (see U.S.G. System Folders). (2) Maximum spacing of frame members: 24" o.c. Width: 4 ft.; length: 8, 9, 10, 12 or 14 ft.; edges: rounded, tapered; finish: natural-finish face paper, suitable for paint, wallpaper or other decoration.

Foil-Back SHEETROCK Brand Gypsum Panels are made by laminating special kraft-backed aluminum foil to back surface of regular or SW Panels. Effective as a vapor barrier for walls and ceilings when applied with foil surface next to the framing (1) in single layer application, or (2) as the base layer in double-layer systems. Thermal insulating value is achieved when foil-back panels are installed with the aluminum foil facing an air space of 1/2" to 3 1/2" (for construction details, see U.S.G. Folders SA-923 and SA-924). This product is designed for use with furred masonry, wood or steel framing, except in air conditioned buildings in climates having sustained high outside temperature and humidity. Under these conditions, a qualified mechanical engineer should determine vapor barrier location.

Foil-Back Gypsum Panels provide an effective vapor barrier that helps prevent interior moisture from entering exterior wall and ceiling spaces. In tests per ASTM C355 (desiccant method), 1/2" foil-back panels showed a vapor permeance of 0.06 perm. **Limitations:** Not recommended as a base for ceramic or other tile or as base layer for TEXTONE Panels in double-layer assemblies. Also not to be used as a base for highly moisture-resistant wall coverings in hot, humid climates such as the Southern Atlantic and Gulf Coast areas. Thickness: 3/8", 1/2" and 5/8". Sizes, edges and finish: same as regular panels.

SHEETROCK Brand W/R Gypsum Panels are a proven water-resistant base for the adhesive application of ceramic and plastic tile and plastic-faced wall panels. Made water-resistant all the way through: (1) multilayered face and back paper are chemically treated to combat penetration of moisture; (2) the gypsum core is made water-resistant with a special asphalt composition. The panel is easily recognized because of its distinctive green face.

Gypsum Panel Application and Frame Spacing

thickness	approx. weight psf	location	application method	max. frame spacing o.c.
3/8" (1)	1.4	ceilings (2)	perpendicular (3)	16"
3/8" (1)	1.4	sidewalls	perpendicular or parallel	16"
1/2"	1.8	ceilings	parallel (3) perpendicular (4)	16" 24"
1/2"	1.8	sidewalls	perpendicular or parallel	24"
5/8"	2.3	ceilings	parallel (3) perpendicular	16" 24"
5/8"	2.3	sidewalls	perpendicular or parallel	24"

(1) For wood framing only. Also see general limitations, page 1. (2) Not recommended below unheated spaces. (3) Not recommended if water-based texturing material is to be applied. (4) Max. spacing 16" if water-based texturing material is to be applied.

Bending of SHEETROCK Brand Gypsum Panels

panel thickness	bending radii with dry panels	
	lengthwise	width
1/2"	20' (1)	—
3/8"	7 1/2'	25'
1/4"	5'	15'

(1) Bending two 1/4" pieces successively permits radii shown for 1/4" thick panels. NOTE: By moistening the face and back paper thoroughly prior to application, and replacing in the stack for at least one hour, the panel may be bent to still shorter radii. When the panel dries thoroughly, it will regain its original hardness.

Limitations: adherence to recommendations concerning sealing edges, painting, tile adhesives, framing and installation is necessary for satisfactory performance (see Folder SA-924). Not recommended for ceilings, for resilient attachment where tile is to be applied or in remodeling unless applied directly to studs. Panels should not be installed over a vapor barrier nor on a wall acting as a vapor barrier.

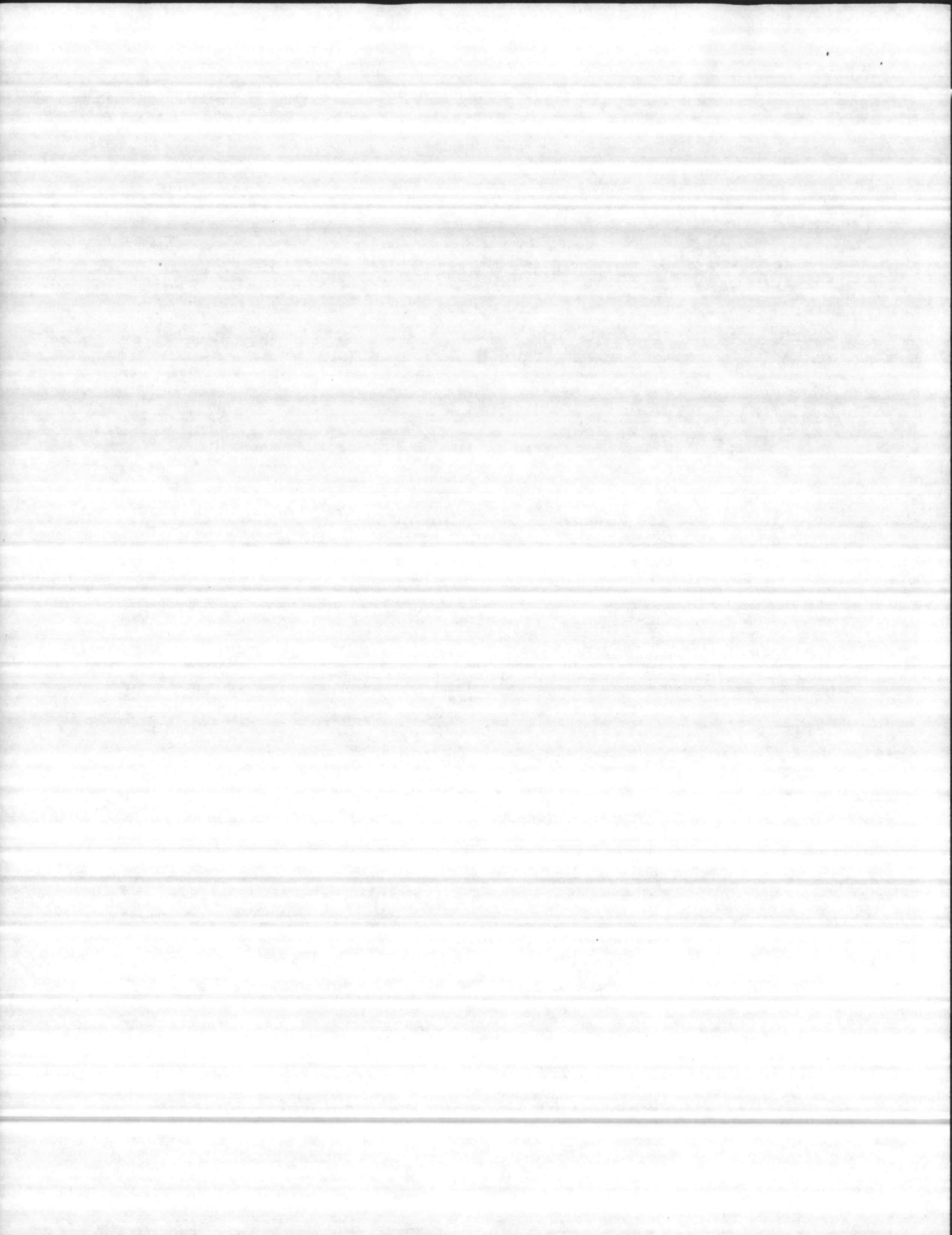
Available in plain core, 1/2" and 5/8" thickness; also in 1/2" and 5/8" SHEETROCK Brand W/R FIRECODE "C" Panels for applications where a fire rating is desired—listed under UL Label Service R-1319-84 with following design numbers applicable: 45-min. U317; 1-hr. U305, U420; 2-hr. U301, U411, U420. Surface burning characteristics: flame spread 20, fuel contributed 5, smoke developed 0. Comply with ASTM C630. Width: 4 ft.; length: 8, 10 or 12 ft.; edges: tapered; finish: green treated paper, suitable for receiving tile, paint or wallpaper.

TEXTONE Panels are conventional gypsum panels with factory-applied vinyl facings in a wide range of coordinated decorator colors. The panels are used for predecorated permanent partitions, movable partitions or in remodeling. See U.S.G. Folder SA-928 for descriptions and specifications.

USG Coreboard has a 1" thick gypsum core encased in strong, gray paper on both sides. It is used in vent shaft and laminated gypsum partitions with additional layers of gypsum panels applied to the coreboard to complete the wall assembly. Manufactured with "V" T&G edges for use in solid partitions or with square edges and prescored 6" to 8" o.c. Coreboard strips are then easily snapped and separated from this master unit. Thickness: 1"; width: 24"; edges: "V" T&G or square; length: 8, 9, 10 and 12 ft. (prescored—7 ft. 8 in. lengths only); finish: gray paper, unsuitable as exposed surface.

USG Shaft Wall Liner has a special gypsum core for added fire resistance and multi-layered green paper facings that are treated to resist moisture penetration. Used in USG Cavity Shaft Wall Partitions (see Folder SA-922) and Area Separation Walls (see Folder SA-925). Panels have beveled edges, are 1" thick, 24" wide and are available in lengths up to 16 ft.

9.5/Ud



"It is hereby certified that the (equipment) (material) shown and marked in this submittal is that proposed to be incorporated into

Contract No. 2. USG Trim Accessories AT-C-1766

compliance with the Contract drawings and specifications. It is noted in the allocated spaces and concealed with USG joint compound approval.

Certificate No. 103 1 1/4" x 1 1/4", No. 104 1 1/2" x 1 1/2"

Date 10/28/84

USG Exterior Gypsum Ceiling Board is a weather- and sag-resistant board designed for use on the soffit side of eaves, canopies and carports and other commercial and residential exterior applications with indirect exposure to the weather. It is noncombustible, is simply scored and snapped for quick application, and offers excellent paintability. Surface burning characteristics: flame spread 20, fuel contribution 5, smoke developed 0.

Installed conventionally in wood and steel-framed soffits; batten strips or moldings used over butt joints or treated joints; backing strips required for small vent openings. Has beige, water-repellent face paper. Thickness: 1/2"; widths: 4"; lengths: 8 and 12 ft.; edges: SW tapered. Also available in 5/8" thick FIRECODE and FIRECODE "C" Exterior Ceiling Board with fire-rated core.

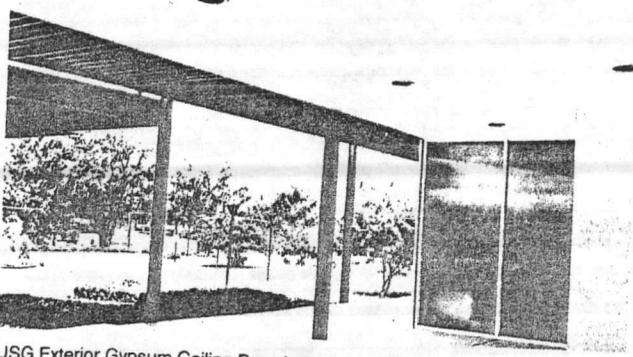
THERMAFIBER Insulation is a mineral fiber product ideal for improving sound control in partition and floor-ceiling constructions. **M-S Blankets** are designed for insulating exterior furring and steel stud curtain wall assemblies. They are open-faced and require separate vapor barrier. **Sound Attenuation Blankets** are a paperless, semi-rigid mineral fiber mat designed to improve STC ratings when installed in U.S.G. steel stud partitions and wood-frame construction. Fire-resistant **Z-Furring Blankets** are used to provide noncombustible exterior wall furring assemblies (see Folder SA-705).

FOAMULAR Polystyrene Insulation, an extruded foam panel, provides exceptional water-resistance for predictable insulating values. Used as insulating sheathing in 1-hour fire-rated, steel or wood-frame exterior walls; as foundation and masonry cavity wall insulation; and in Z-furring systems for insulating exterior walls (see Folder SA-710).

USG Gypsum Sheathing is a fire-resistant gypsum board, 1/2" thick, with an asphalted gypsum core encased in specially formulated brown water-repellent paper on both sides and long edges. Its weather resistance, water repellence, fire resistance and low applied cost make it suitable for use in exterior curtain wall construction (see Folder SA-805); also a popular choice for wood-framed garden apartments and light commercial building (see U.S.G. Folder SA-924 for application and specifications). Available 24" wide, 8-ft. length with V-shaped T&G long edges and 48" wide, 8 and 9-ft. lengths with square edges.

USG Triple-Sealed Gypsum Sheathing is a low-cost structural sheathing for wood frame construction under many exterior finishes—masonry veneer, wood siding and shingles, stucco and composition siding. Triple-sealed with water-repellent paper on face, back and long edges, this fire-resistant gypsum board has untreated core but comes with ends coated with special waterproofing. Easily nailed to studs 16" o.c. (see U.S.G. Folder SA-924 for application and specifications). Available 0.4" thick, 48" wide, 8 and 9-ft. lengths with square edges.

GYP-LAP Gypsum Sheathing is a weather- and fire-resistant board used in exterior curtain walls (see Folder SA-805) and in wood and light steel frame construction (see Folder SA-924). Lightweight board has noncombustible gypsum core clad in water-repellent paper on face and back surfaces. Available on west coast, 1/2" thick, 24" wide, 8-ft. length with V-shaped T&G long edges and 48" wide, 8-ft. length with square edges.



USG Exterior Gypsum Ceiling Board

DUR-A-BEAD is an all-metal hot-dip galvanized steel reinforcement for protecting external corners. It is nailed to framing through gypsum panels and concealed with USG joint compound. Coated with bonding agent for superior joint compound adhesion. Available in three flange widths: **No. 101** 1"x1"; **No. 103** 1 1/4"x1 1/4"; **No. 104** 1 1/2"x1 1/2".

No. 800 Corner Bead is a galvanized steel external corner reinforcement with 1/4" wide fine mesh expanded flanges. Nailed or stapled to framing through panels; provides superior key for joint compounds and eliminates shadowing.

USG Control Joint No. 093 is used to relieve stresses of expansion and contraction across the joint in large ceiling and wall areas. Used from floor to ceiling in long partition runs, and from door header to ceiling. Made from roll-formed zinc with a tape-protected 1/4" opening 7/16" deep. Lengths: 8 and 10 ft. **Limitation:** where sound and/or fire ratings are prime considerations, an adequate seal must be provided behind the control joints.

USG Metal Trims provide protection and neat finished edges to gypsum panels at window and door jambs, at ceiling angles and at intersections where panels abut other materials. Easily installed by nailing through the channel and panels into the framing or jamb. Eliminate precision cutting and mitering; joints are simply butted together. Finished with U.S.G. joint compounds (except #400). Made in following types and sizes:

#200 series—steel casing, includes **No. 200-A** U-shaped channel in 1/2" and 5/8" sizes; **No. 200-B** L-shaped angle edge trim without back flange to simplify application, in 1/2" and 5/8" sizes; **No. 200-C** L-shaped trim, requires slotted jamb for installation in most cases, open "V" edge of flange inserts into 1/8" kerf to make trim adjustable for use with 3/8", 1/2" and 5/8" gypsum panels.

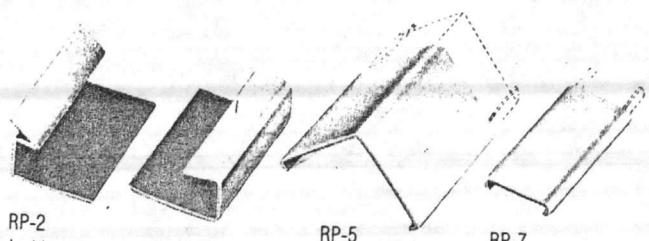
#400 series—reveal type all-metal trim, requires no finishing compound, includes **No. 400** in 3/8" size, **No. 401** in 1/2" size, **No. 402** in 5/8" size.

#800 series—all-metal trim with expanded flanges used to provide edge protection at cased openings and ceilings or wall intersections. Includes **801-A** channel-type and **801-B** L-shaped trim, both in 1/2" and 5/8" sizes.

USG P-1 Vinyl Trim is a reveal type, white plastic trim with flanges and web of rigid vinyl and integral flexible vinyl fins that compress on installation. Fins form permanent flexible seal to effectively block sound, replace caulking, provide structural stress relief at panel perimeter. Fits tightly over panel edge; requires no finishing compound; paints easily; includes **P-1A** in 1/2" size, **P-1B** in 5/8" size.

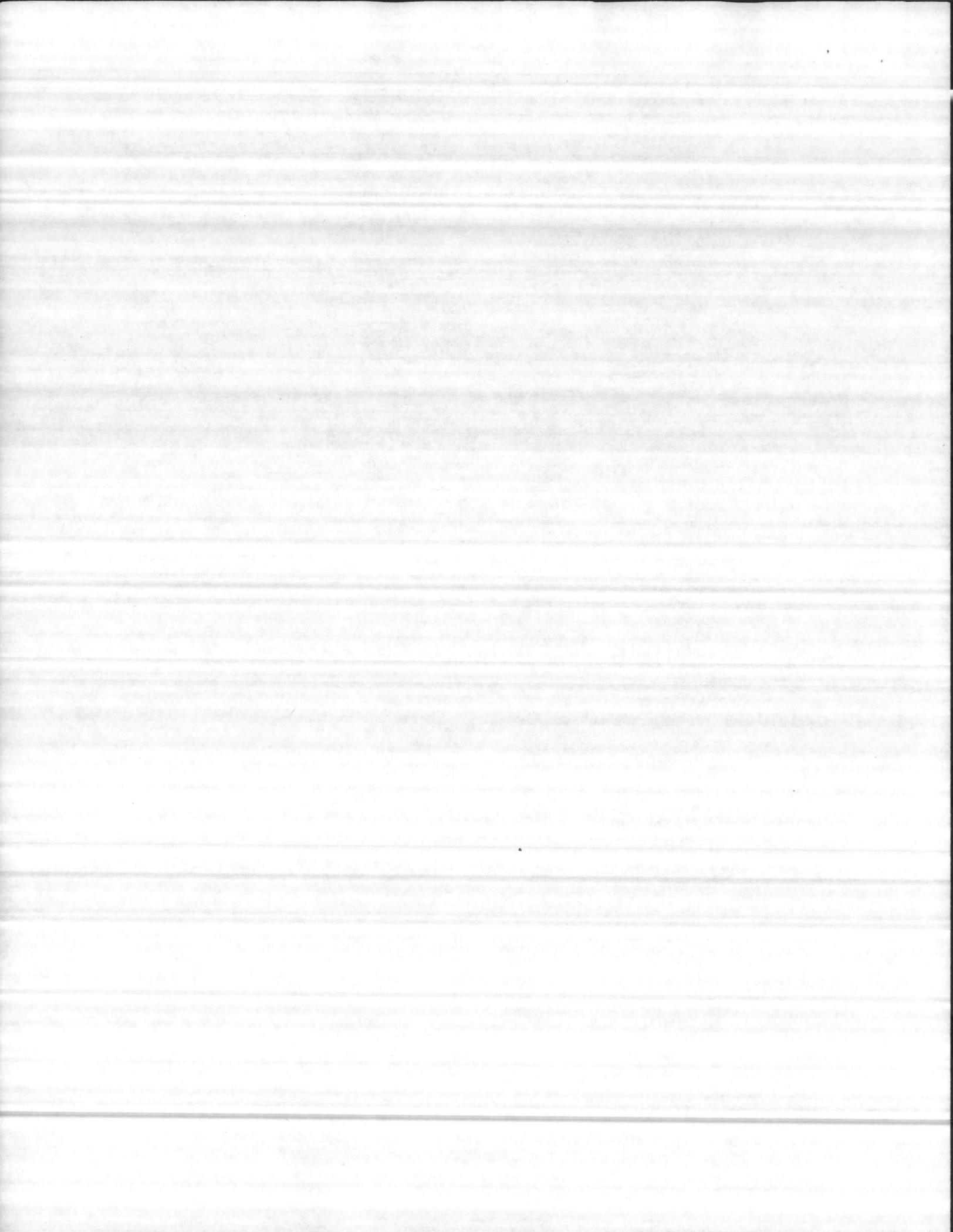
USG P-2 Vinyl Trim is a channel-shaped vinyl trim with a pressure-sensitive adhesive backing for attachment to the wall at wall-ceiling intersections. Provides positive perimeter relief in radiant heat ceiling systems. Length: 10 ft.

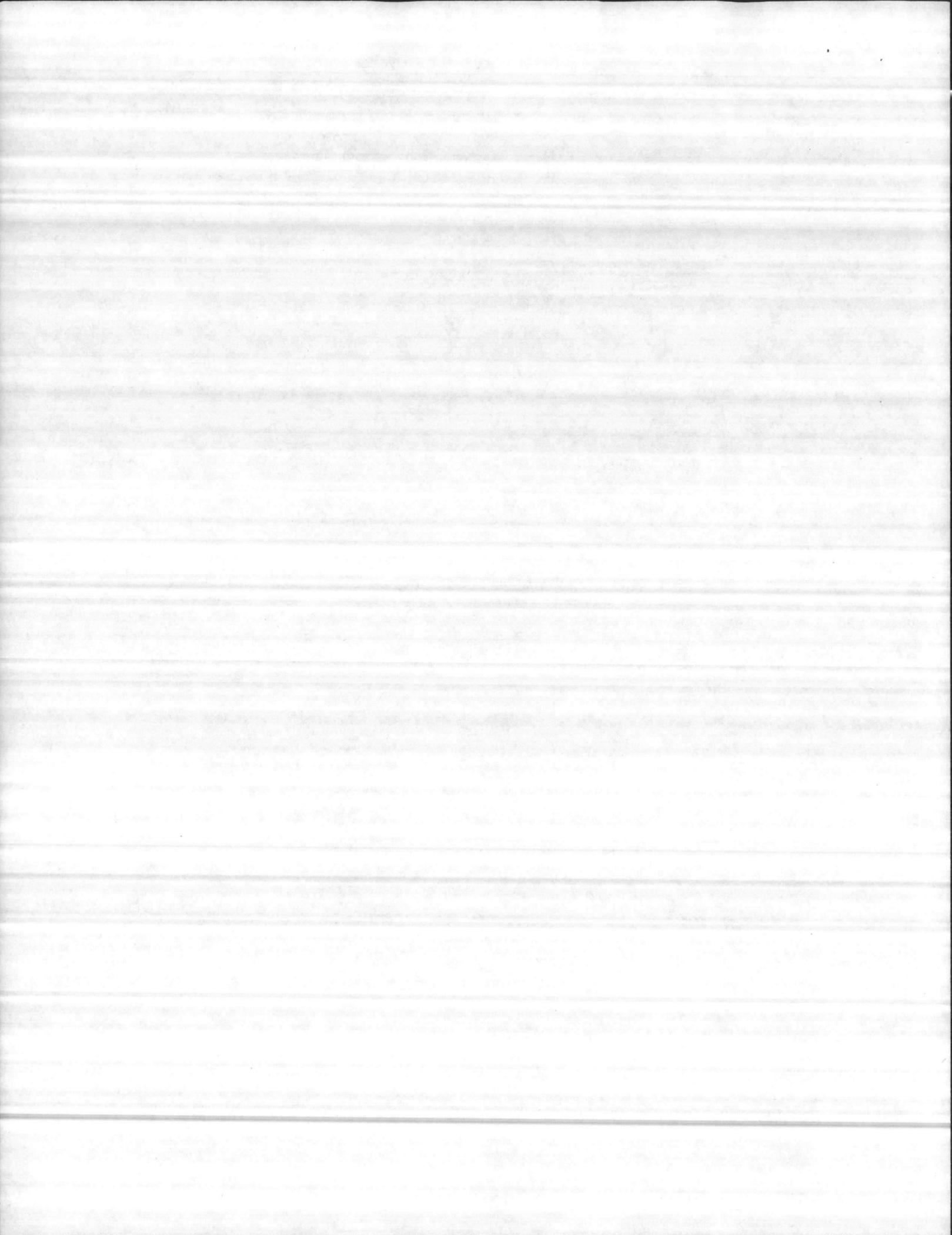
USG Rigid Vinyl Trim (RP Series) is precision-made of vinyl plastic in solid colors: ivory, tan, chocolate and black. Available for 1/2" and 5/8" thick panels; lengths: 8, 9, 10 ft.; shapes: **RP-2** Inside Corner, **RP-4** End Cap, **RP-5** Snap-on Corner, **RP-7** Snap-on Batten.



RP-2 Inside Corner RP-4 End Cap RP-5 Snap-on Corner RP-7 Snap-on Batten

USG Rigid Vinyl Trim





gypsum panels to interiors of existing walls and ceilings. Made of hot-dip galvanized steel; furring depths: 1", 1½", 2", 3"; length: 8'-6".

USG Adjustable Wall Furring Brackets are used in braced furring systems for exterior masonry walls. Made of 20-ga. galvanized steel with corrugated edges, they are screw-attached to USG Steel Studs; fur out panels up to 2¼" plus stud width.

USG Cold-Rolled Channels, made of 16-ga. steel, are used for furring, and in suspended ceilings and partition constructions. Available either galvanized or black asphaltum painted. Sizes: ¾", with ½" flange; 1½" with 19/32" flange. Length: 16 and 20 ft.

RC-1 Resilient Channel is a galvanized steel channel which provides for resilient attachment of gypsum panels to wood framing. Widely used to improve sound transmission loss in partitions and ceilings of garden-type apartments, motels and other structures (see U.S.G. Construction Selector). Prepunched holes in the flange facilitate screw fastening to framing members; panels are attached to channel with USG Type S Screws. Width: 2½"; depth: ½"; length: 12 ft. **Limitation:** not for use beneath highly flexible floor joists; should be attached to ceilings only with 1¼" USG Type W or S screws; see Wood Framing Requirements, page 9.

Note: Refer to Notes to Architect, page 10, for recommendations concerning use and storage of light-gauge metal components in Coastal and other areas where corrosive elements are present in the atmosphere.

USG Steel Components for Shaft Walls and Area Separation Walls are formed from corrosion-resistant steel, with base metal meeting structural performance standards in ASTM A446 Grade C, except C-H Stud Grade A. (see U.S.G. Folders SA-922 and SA-925). Items are end color-coded at factory to indicate thickness as follows: 25 ga. black; 24 ga. red; 22 ga. blue; 20 ga. white; 18 ga. yellow; 16 ga. green. Two groups:

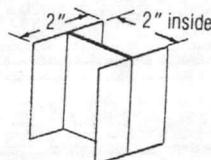
Cavity Wall Components are made from galvanized steel for use with 1" thick USG Shaft Wall Liner. **USG Steel J-Runners** used as floor and ceiling runners and for elevator door framing are made with unequal legs in 2½", 4" and 6" widths; styles: 212JR24, 400JR24, 600JR24; length: 10 ft. **USG Steel C-H Studs** are rigid, roll-formed sections specially shaped to engage 1" liner panels. Widths: 2½" and 4"; styles: 212CH25, 212CH22, 400CH25, 400CH20; lengths as required.

USG Steel E-Studs are used singly to cap partition or both sides of closure panel; widths: 2½", 4" and 6"; styles: 212ES25, 212ES20, 400ES25, 400ES20, 600ES25, 500ES20; lengths as required. **USG Steel J-Struts** are used in jamb framing for fire-rated elevator doors. Widths: 2½" and 4"; style: 212JS20, 400JS20; lengths as required.

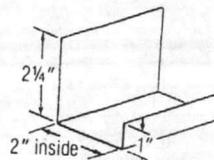
Solid Wall Components are made for use with two thicknesses of 1" thick USG Shaft Wall Liner in Area Separation Walls. **USG Steel J-Runners** are used as floor and ceiling runners and back-to-back between liner panels at intermediate floors. Width: 2"; style: 200JR24; length: 10 ft. **USG Steel H-Studs** slide over and engage edges of adjacent liner panels. Width: 2"; styles: 200HS24, 200HS22, 200HS20, 200HS18, 200HS16; length: 8 to 16 ft. **USG Steel C-Studs** are used singly to cap partition or back-to-back both sides of closure panels. Width, styles and length same as for H-Studs.

USG Direct Suspension System is a direct-hung steel ceiling grid for screw application of gypsum panels in commercial and industrial buildings. This modular system consists of simple, fast-erecting,

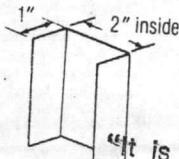
Steel Components for Shaft Walls and Separation Walls



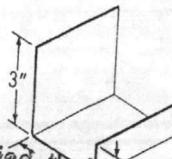
USG Steel H-Stud (HS)



USG Steel J-Runner (JR)

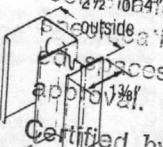


USG Steel C-Stud (CS)

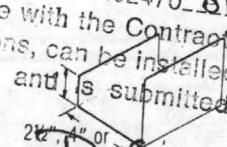


USG Steel J-Strut (JS)

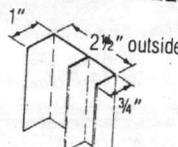
"It is hereby certified that the (equipment) (material) shown and marked in this submittal is that proposed to be incorporated into Contract Number N62470-81-C-1766 in accordance with the Contract drawings and specifications, and is submitted in the allocated spaces, and is submitted Governmentally applicable."



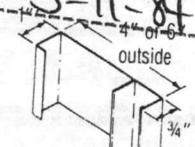
USG Steel C-Stud (C-H)



USG Steel J-Runner (JR)

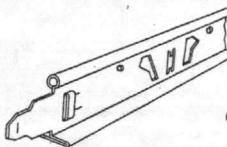


USG Steel E-Stud (ES)

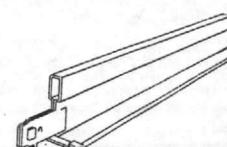


USG Steel E-Stud (ES)

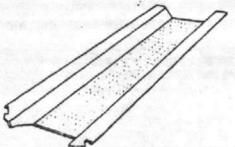
USG Cavity Wall Systems



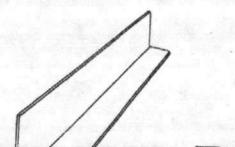
MB-12 Main Beam



CB-4 Cross Beam



CFC-4 Cross Furring Channel



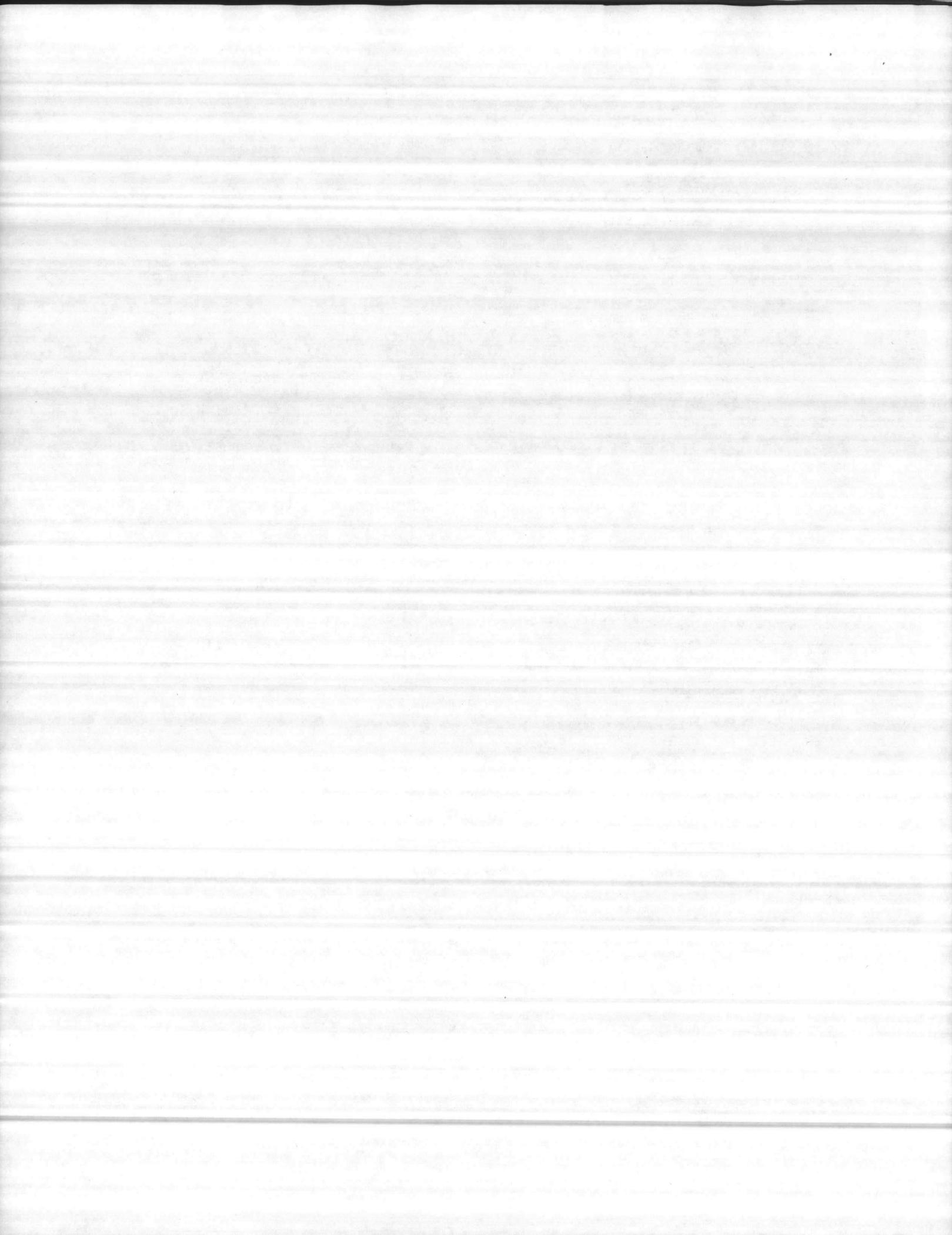
Wall Angle

USG Direct Suspension System



RC-1 Resilient Channel

snap-lock parts. **Main Beam MB-12** standard heavy-duty tee beam prepunched for intersecting components; splices without clips or plates. Length: 12 ft. **Cross Furring Channel CFC-4** simply locks into main beam. Knurled surface and 25-ga. steel speed screw penetration. Length: 4 ft. **Cross Beam CB-4** supports edge of standard 2x4 ft. lighting fixtures. Length: 4 ft. **Wall Angle** supports Cross Furring Channels, provides backup for gypsum panels at wall. Length: 10 ft.



9.5/UD

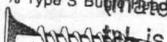
Selector Guide for USG Screws

Fastening Application

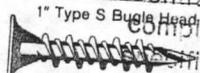
Fastener Used

GYPSUM PANELS TO STEEL FRAMING (1)

1/2" single layer panels to steel studs, runners, channels



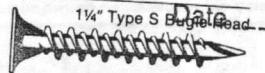
3/8" single layer panels to steel studs, runners, channels. Specify cadmium-plated screws to attach gypsum sheathing in curtain walls



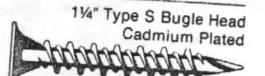
3/8" single layer panels to RC-1 channels
Batten strips to steel studs in demountable partitions



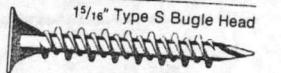
1" coreboard to metal angle runners in solid partitions



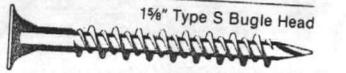
ULTRAWALL Panels to studs and runners



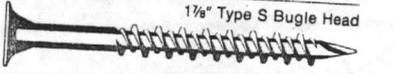
1/2" double layer panels to steel studs, runners, channels



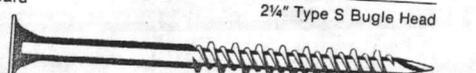
3/8" double layer panels to steel studs, runners, channels



1/2" panels through coreboard to metal angle runners in solid partitions

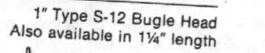


3/8" panels through coreboard to metal angle runners in solid partitions. Also available in 2 5/8" and 3" lengths

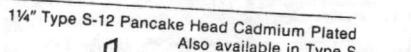


GYPSUM PANELS TO 12-GA. (MAX.) STEEL FRAMING (1)

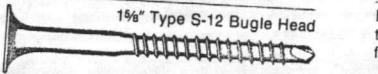
1/2" and 3/8" panels and gypsum sheathing to steel studs and runners. Specify cadmium-plated screws to attach gypsum sheathing in curtain walls



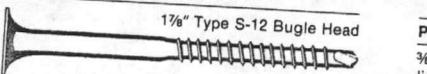
USG Self-Furring Metal Lath and brick wall ties through gypsum sheathing to steel studs and runners in curtain walls



1/2" and 3/8" double layer gypsum panels to steel studs and runners

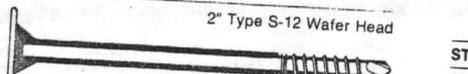


Multi-layer gypsum panels to steel studs and runners
Also available in 2", 2 3/8", 2 5/8" and 3" lengths



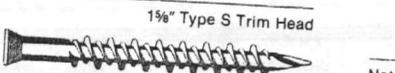
RIGID FOAM INSULATION TO 12-GA. (MAX.) STEEL FRAMING

Rigid foam insulation panels to steel studs and runners
Also available in 1 1/2", 2 1/2" and 3" length and Type R for 25-ga. steel

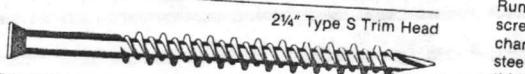


WOOD TRIM TO INTERIOR STEEL FRAMING

Wood trim over single layer panels to steel studs, runners. Also available in 1" length and Type S-12



Wood trim over double layer panels to steel studs, runners



Fastening Application

Fastener Used

It is hereby stated that the equipment (material) shown and marked in this submission is that proposed to be incorporated into Contract Number N62470 81-C-1746 in compliance with the contract drawings and specifications. This offer is made in the allocated spaces, and is submitted Government.

Steel studs to runners



Steel studs to door frame jamb anchor clips



Other metal-to-metal attachment (12-ga. max.)

Also available in 1/2" length

Steel studs to door frame jamb anchor clips (heavy duty)



Steel studs to runner

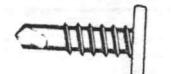
Other metal-to-metal attachment (suitable for double thickness 14-ga.)

Steel studs to door frame jamb anchor clips (heavy duty)

Also available in 1 1/2" length

Steel studs to runner

Other metal-to-metal attachment (suitable for double thickness 14-ga.)



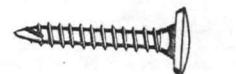
Strut studs to door frame clips, rails, other attachments in ULTRAWALL movable partitions

Also available in 1 1/2" length

TRIM AND ACCESSORIES TO STEEL FRAMING

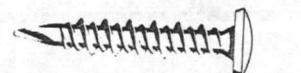
Door hinges and trim to door frame
Aluminum trim to steel framing
(screw matches hardware and trim)

3/8" Finishing Screw Type S-18 Oval Head Cadmium Plated



Cabinets to steel studs and resilient channels

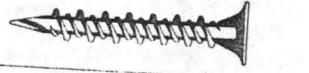
Also available in 1 5/8", 2 1/4", 2 5/8" and 3 1/4" length



GYPSUM PANELS TO WOOD FRAMING

3/8", 1/2" and 5/8" single layer panels to wood framing

1 1/4" Type W Bugle Head



RC-1 RESILIENT CHANNEL TO WOOD FRAMING

Screw attachment required for ceiling, recommended for partitions

1 1/4" Type W, 3/8" or 1" Type S Bugle Head (see details above)

For fire-rated construction

1 1/4" Type S Bugle Head (see detail at left)

GYPSUM PANELS TO GYPSUM PANELS

Multi-layer adhesively laminated gypsum to gypsum partitions (not recommended for double layer 3/8" panels)

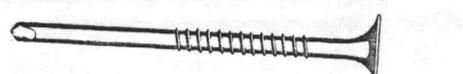
1 1/2" Type G Bugle Head



PLYWOOD TO STEEL JOISTS

3/8" to 3/4" plywood to light steel joists (penetrates double thickness 14-ga.)

1 15/16" Type S-12 Bugle Head, Pilot Point



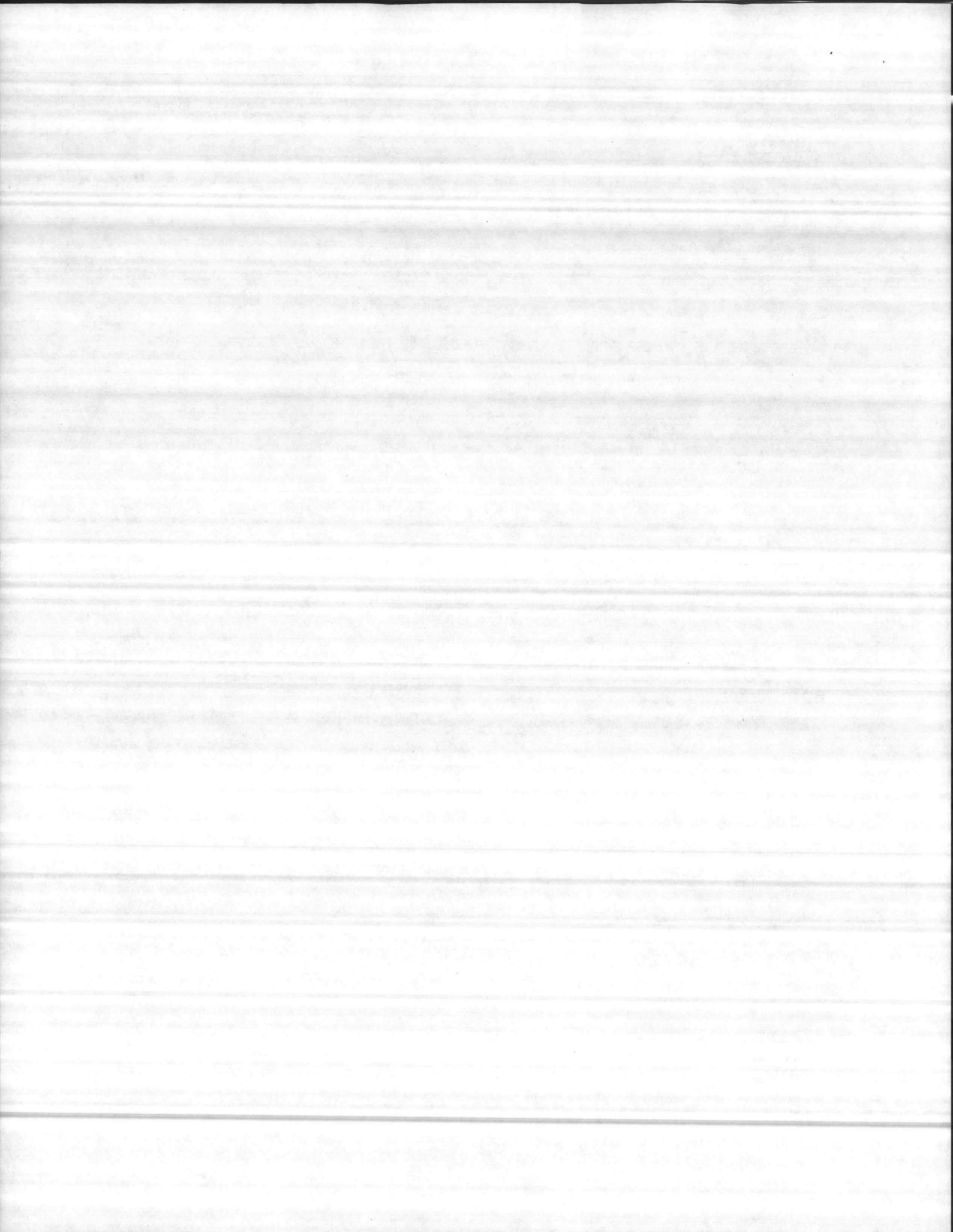
STEEL COMPONENTS TO CONCRETE

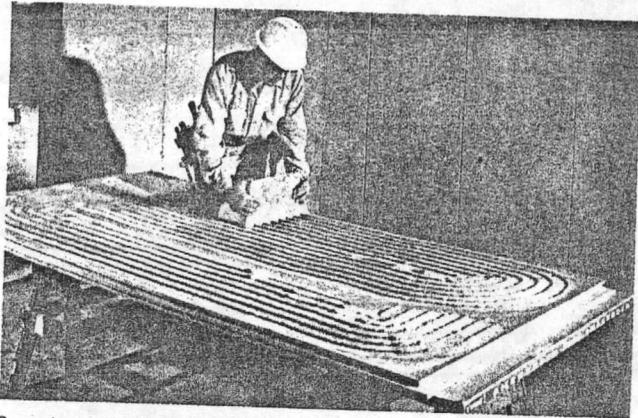
Steel framing components to poured concrete and concrete block

3/16" x 1 3/4" Acorn Slotted HWH TAPCON Anchor



Notes: (1) Includes USG Steel Studs and Runners, ST and CWS styles; Metal Angle Runner; Metal Furring Channels; RC-1 Resilient Channels. If channel resiliency makes screw penetration difficult, use screws 1/8" longer than shown to attach panels to RC-1 channels. For other gauges of studs and runners, always use Type S-12 screws. For steel applications not shown, select a screw length which is at least 3/8" longer than total thickness of materials to be fastened. USG Screws are manufactured under U.S. Patent Nos. 3,207,023; 3,221,558; 3,204,442; 3,260,100.





Spreader application of adhesive

4. USG Screws, Adhesives and Sealants

USG Screws are aimed at producing the best possible attachments of SHEETROCK Brand Gypsum Panels. Their development not only has improved installation methods but has made possible today's broad selection of drywall systems applied over steel framing. Screws must be used with such systems.

The superior holding power of drywall screws has virtually eliminated loose panel attachment and consequent problems of "nail pops" in wood frame construction. Fewer screws than nails are generally required, and speed of installation compares favorably with nailing when electric screwguns are used. Fracturing of the gypsum core and damage to face paper are minimized. Tests have shown USG Type W Screws to have 350% greater withdrawal resistance than GWB-54 nails.

Today's complete U.S.G. line of self-drilling, self-tapping steel screws includes types with a double lead thread design which produces up to 30% faster penetration, less screw stripping, and greater holding power than conventional fasteners. Comply with ASTM C646.

SUPER-TITE Screws are high quality, economical screws for interior framing applications. These self-drilling, self-tapping steel screws have specially designed drill point and threads to assure fast penetration into steel and wood framing. Sizes available: 1", 1 1/8", 1 1/4", 1 5/8", 2 1/4", 3" Bugle Head for attaching gypsum panels to 20 and 25-ga. steel framing; 1 1/4" W Bugle Head for attaching panels to wood framing; 7/16" Pan Head for securing studs to runners. Comply with ASTM C646.

Drywall Adhesives make an important contribution to gypsum panel attachment where the finest room interiors are desired. Their use greatly reduces the nail or screw fastening otherwise required, thus saves labor on spotting and sanding—also minimizes nail pops and other fastener imperfections.

Recommended for laminating gypsum panels in multi-layer fire-rated or non-rated partitions and ceilings are **DURABOND Joint Compounds**—dry powder products, applied by spreader, requiring mixing and temporary fastening in application or **USG Ready-Mixed Joint Compound**—All Purpose or Taping. Provide tight bond when dry yet permit adjustment of panels after contact.

Commercially available adhesives in drywall stud, laminating, liquid contact and construction types are used in non-fire rated gypsum construction. These adhesives bridge minor irregularities in the base or framing, make it easier to form true joints and level surfaces. The use of adhesive adds strength to an assembly, reduces fasteners required, helps eliminate loose panels and nail pops.

USG Acoustical Sealant is a highly elastic, water-base caulking for sound-rated partition and ceiling systems and sealing exterior walls to reduce infiltration. Non-bleeding and staining, pumpable and easily

applied in beads. Provides excellent adherence to most surfaces, permanent flexibility and lasting seal.

Also available is **SHEETROCK Brand W/R Compound** used to treat joints and applied to all cut edges and nail heads of special Water-Resistant Gypsum Panels used in high-moisture room areas to protect the gypsum core from moisture penetration.

For complete application specifications, see pertinent U.S.G. System Folders and adhesive manufacturer's directions.

5. Joint Treatment and Texture Products

Today's complete U.S.G. joint treatment line includes both ready-mixed and powder products in drying and hardening types. All are formulated without asbestos to meet OSHA and Consumer Product Safety standard pertaining to asbestos. In addition to conventional joint finishing and fastener spotting, certain of these products are designed for repairing cracks, patching, spackling, back-blocking, texturing and for laminating gypsum panels in double-layer systems. These products meet ASTM C475-64 and Federal Specification SS-J-570B—Type I.

U.S.G. also produces the industry's broadest line of texture finishes to provide distinctive appearance and surface decoration to gypsum panel walls and ceilings. A full line of both ready-to-use and powder products are offered to create fine, medium or coarse textures, sand or simulated acoustical finishes and interesting flat ripple, "orange peel" or light to medium stipples. For available texture products, often applied by the same trade which finishes the equipment, refer to material sheets and price books. For further information, refer to USG texture and repair products folder SA 233.

It is hereby certified that the equipment is that proposed to be incorporated into general limitations

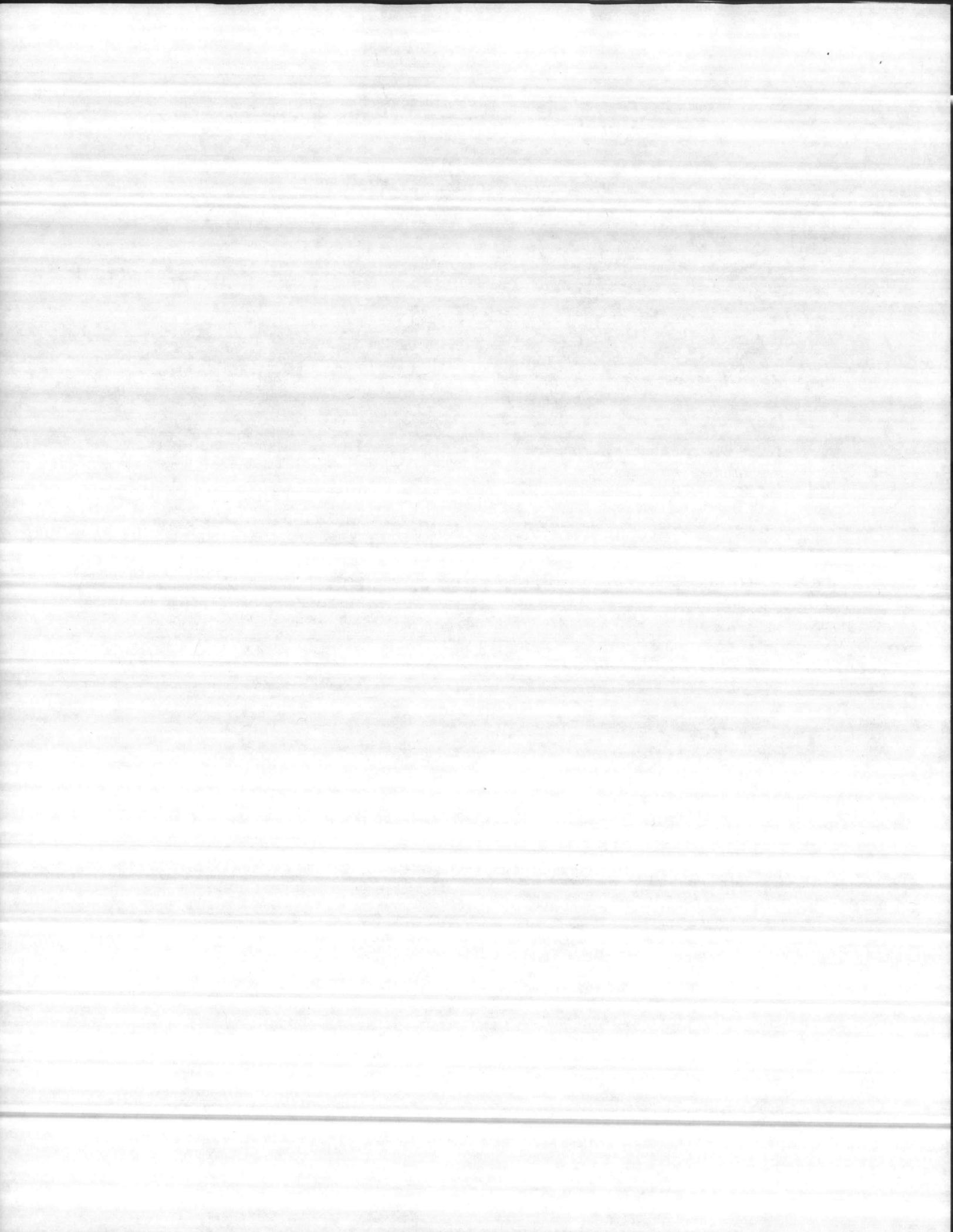
- Contract Number N62470-81-C-1766
1. U.S.G. joint compounds are not compatible with and should not be intermixed with any other compounds, drawings and specifications.
 2. For interior use only (except DURABOND Compounds), not recommended for laminating (except DURABOND Compounds and USG Ready-Mixed Compounds—All Purpose and Taping).
 3. Protect bagged and cartoned products against wetting; protect ready-mixed products from freezing and extreme heat.
 4. Each compound coat must be dry before the next is applied (except DURABOND Compounds), and completed joint treatment must be thoroughly dry before decorating.
 5. U.S.G. joint compounds are not recommended for treating joints of Water-Resistant Gypsum Panels to be covered with ceramic or plastic tile (use SHEETROCK Brand W/R Compound).

PERF-A-TAPE Reinforcing Tape is a strong, cross-fibered paper tape with minimal longitudinal stretch and superior tensile strength. Lightly pre-creased for corner application. For estimating purposes: for 1,000 sq.ft. of surface area to be finished, approximately 370 lin. ft. of tape and 65 lb. of powder-type or 75 lb. of ready-mixed type joint compound are required.

Ready-Mixed Compounds

USG Ready-Mixed Joint Compounds are vastly superior to ordinary ready-mixed compounds and are preferred for consistently high-quality work. These non-asbestos vinyl-based formulations are specially premixed to a creamy, smooth consistency essentially free of crater-causing air bubbles. They offer excellent slip and bond, easy workability. Used direct from the container without mixing, thinning or retempering. Available in either regular, hand or tool consistency; on-the-wall cost averages the same as with powder compounds. **Limitation:** must protect wet joints and container from freezing.

USG Ready-Mixed Joint Compound-Taping is a high-performance product for embedding tape and as a first fill coat over metal bead, trim and fasteners. Also used for laminating.



It is hereby certified that the (equipment) (material) shown and marked in this submittal is that proposed to be incorporated into

Contract Number N62470-81-C-1766 in

USG Ready-Mixed Joint Compound-Topping is a low shrinkage, easily applied and sanded product recommended for second and third coats over USG Ready-Mixed Taping and All Purpose Compounds. Also used for simple texturing or skim coating. Not suitable for embedding tape or as first coat over metal corners, trim and fasteners.

USG Ready-Mixed Joint Compound-All Purpose, used for embedding, finishing, simple texturing and for laminating. Combine single-package convenience with the Contract drawings and specifications. **USG Ready-Mixed Joint Compound-Topping** can be installed in the allocated space and is submitted for Government approval. **USG Ready-Mixed Joint Compound-All Purpose** is an ideal alternate to DURABOND 210 Joint Compound in applications where quicker finishing or laminating are desired. Required as prefill material for SW Gypsum Panels. Also used extensively for touch-up and patching. **USG Ready-Mixed Joint Compound-Topping** is ideal for filling offsets and voids in poured concrete. **DURABOND 45, 150 and 300 Joint Compounds** offer a variety in setting times of approx. 30 to 60 min., 120 to 180 min. and 240 to 360 min.

Vinyl-Base Powder Joint Compounds

USG Powder Joint Compounds are top-quality, non-asbestos, conventionally drying products providing easy mixing, smooth application and ample working time. Designed for embedding tape; for fill coats and finishing over drywall joints, corner bead, trim and fasteners. Also used for simple texture finishes for decorating variety; will not cause alkali burning of paint.

USG Joint Compound-Taping is designed for embedding tape and for first fill coat on metal beads, trim and fasteners; also used for patching plaster cracks. Outstanding bond and resistance to tape cracking.

USG Joint Compound-Topping is a smooth-sanding material for second and third coats over taping compound or all-purpose compound. Produces excellent feathering and superior finishing results.

USG Joint Compound-All Purpose incorporates good taping and topping characteristics in a single product, for use where finest results of the specialized compounds (above) are not necessary. Also has good texturing properties.

DURABOND Joint Compounds

These hardening-type powder products were developed to provide faster finishing of drywall interiors, even under slow drying conditions. Rapid chemical hardening and low shrinkage permit same-day finishing and usually next-day decoration. Features exceptional bond; virtually unaffected by humidity extremes. Ideal for laminating double-layer systems, particularly fire-rated assemblies, and for adhering gypsum panels to sound deadening boards and to above-grade concrete surfaces. Excellent for skim coating and surface texturing and for filling, smoothing and finishing interior above-grade concrete. Also used to treat joints in exterior gypsum ceiling board and to embed tape and fill beads in veneer finish systems when rapid drying conditions exist. **Limitations:** DURABOND Compounds are difficult to sand after drying and must be smoothed before complete hardening. Not to be applied over moist surfaces or surfaces likely to become moist, on below-grade surfaces, or on other surfaces subject to moisture exposure, pitting or popping.

DURABOND 210 Joint Compound is preferred for embedding tape and

metal accessories; also ideal for heavy fills because it chemically hardens in 3 to 6 hours. Virtually unaffected by humidity.

DURABOND 90 Joint Compound with a 1 to 2-hour hardening time is an ideal alternate to DURABOND 210 Joint Compound in applications where quicker finishing or laminating are desired. Required as prefill material for SW Gypsum Panels. Also used extensively for touch-up and patching. **USG Ready-Mixed Joint Compound-Topping** is ideal for filling offsets and voids in poured concrete. **DURABOND 45, 150 and 300 Joint Compounds** offer a variety in setting times of approx. 30 to 60 min., 120 to 180 min. and 240 to 360 min.

Concrete Finishing Compound

COVER COAT Compound is a vinyl-base product, designed for filling and smoothing monolithic concrete ceilings and columns located above grade—no extra bonding agent needed. Supplied in ready-mixed form (sand can be added), easily applied with drywall tools in two or more coats. Dries to a fine white surface usually making further decoration unnecessary on ceilings. **Limitations:** not to be applied over moist surfaces or surfaces likely to become moist (by condensation or otherwise); on ceiling areas below grade; on surfaces which project outside the building, or on other areas which might be subject to moisture, freezing, efflorescence, pitting or popping.

wood framing requirements

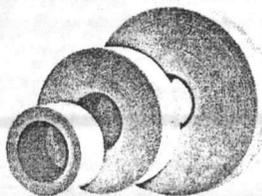
Wood framing meeting the following minimum requirements is necessary for proper performance of all gypsum panel assemblies.

1. Framework should meet the minimum requirements of HUD/FHA, ALSC and local building codes.
2. Framing members should be straight, true, of uniform dimension, and framing should be properly aligned.
3. All framing lumber should be of a good grade for the intended use, and 2"x4" nominal size or larger should bear the grade mark of a recognized inspection agency using grading rules for lumber recommended by American Lumber Standards Committee.
4. All framing lumber should have a moisture content not in excess of 15% at time of gypsum panel application.
5. Do not attach gypsum panels to extremely soft framing members.

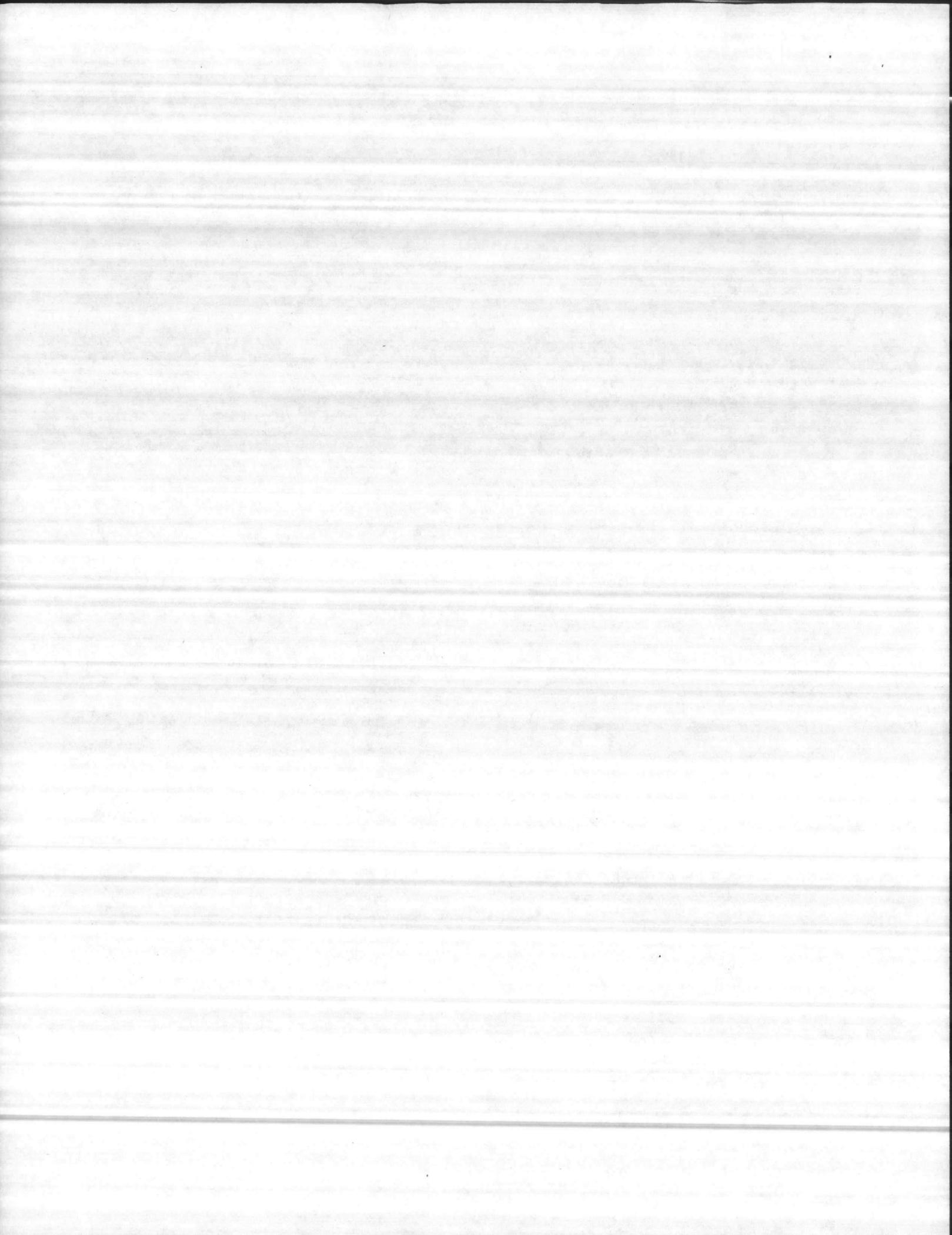
Failure to observe these minimum framing requirements, which are applicable to screw, nail and adhesive attachment, will materially increase the possibility of fastener failure and surface distortion, due to warping or dimensional changes. This is particularly true if framing lumber has greater than normal tendencies to warp or shrink after erection.

heating and ventilation recommendations

Framing should approach as closely as possible the moisture content it will reach in service by allowing the building, after it is enclosed, to stand as long as possible prior to the application of the gypsum panels. Provide heat in winter or during damp conditions at a uniform temperature in the range of 55° to 70°F. Provide ventilation to remove excess moisture.



9.5/UD



general drywall specifications

notes to architect

1. **Specifications**—Following comments and recommendations cover basic specifications for normal job requirements, and are intended as minimum guide specifications which can be adapted to specific projects and conditions. These specifications are not intended to cover every possible design or job condition, but rather to assist in preparation of specifications for a given project.

2. **Related Systems**—Description, details and specifications on the various drywall systems are covered in pertinent U.S.G. System Folders in this series and in Sweet's General Building File:

Light Steel Framing	SA-510
Exterior Curtain Walls	SA-805
Cavity Shaft Walls	SA-922
Steel-Framed Drywall Systems	SA-923
Drywall/Wood Frame Systems	SA-924
Area Separation Walls	SA-925

3. **Protection**—Light gauge metal components such as steel studs and runners, furring channels and resilient channels should be given adequate protection in the warehouse and on the jobsite against rusting caused by moisture. In marine areas such as the Caribbean, Florida and the Gulf Coast where chloride as well as sea salt is present in combination with excessively high humidity, use of components which offer increased protection against corrosion is recommended.

4. **Shadowing**—Temperature differentials on the interior surface of exterior walls may result in collection of dust on the colder surface areas. Consequently, shadowing (accumulated dust) may occur at locations of fasteners or furring channels where surface temperatures usually are lowest. United States Gypsum cannot be held responsible for surface discoloration of this nature. Where temperature, humidity and soiling conditions are expected to cause objectionable blemishes, use free standing furring with insulation against the exterior wall.

5. **Note**—United States Gypsum reserves the right to make changes or improvements in the design of all catalogued items without notice and without obligation to incorporate these changes or improvements in items already manufactured.

6. **Additional Information**—See U.S.G. technical folders in this series and in Sweet's General Building File; Construction Selector SA-100 for fire and sound-rated systems; TEXTONE Gypsum Panels SA-928 for vinyl-surfaced panel colors and patterns; Texture and Paint Products SA-933 for finishing product specifications; Building & Acoustical Insulation SA-705 for insulation specifications; FOAMULAR Insulation SA-710 for data on rigid polystyrene insulation.

Part 1: general

1.1 **scope**—Specify to meet project requirements.

1.2 qualifications

All materials, unless otherwise indicated, shall be manufactured by United States Gypsum Company, and shall be installed in accordance with its current printed directions.

1.3 delivery and storage of materials

All materials shall be delivered in their original unopened packages and stored in an enclosed shelter providing protection from damage and exposure to the elements. Damaged or deteriorated materials shall be removed from the premises.

1.4 environmental conditions

In cold weather and during gypsum panel joint finishing, temperatures within the building shall be maintained within the range of 55° to 70°F. (13° to 21°C). Adequate ventilation shall be provided to carry off excess moisture.

It is hereby certified that the (equipment) (material) shown and marked in this submittal is that proposed to be incorporated into

Contract Number N62470-91-C-17669
compliance with the Contract drawings and specifications, can be installed in the allocated spaces and is submitted Government approval.

Part 2: products

2.1 materials

Certified Gypsum Panels (in lengths as long as practical to minimize number of joints):

Date: SHEETROCK Brand (Regular, SW, FIRECODE, FIRECODE "C", Foil-Back) Gypsum Panels (thickness).

TEXTONE Vinyl Panels (type) (color or pattern).

SHEETROCK Brand W/R (FIRECODE "C") Gypsum Panels (type) (thickness).

b. **Gypsum Coreboard**: USG Coreboard (length).

c. **Gypsum Sheathing**: (USG Gypsum Sheathing, USG Triple-Sealed Gypsum Sheathing, GYP-LAP Gypsum Sheathing) (size).

d. **Exterior Ceiling Board**: USG Exterior Gypsum Ceiling Board.

e. **Corner Reinforcement**: (DUR-A-BEAD No. 101, 103, 104) (No. 800).

f. **Metal Trim**: USG Metal Trim No. (200-A 1/2" or 5/8", 200-B 1/2" or 5/8", 200-C, 400, 401 or 402, 801-A 1/2" or 5/8", 801-B 1/2" or 5/8").

g. **Plastic Trim**: USG (P-1) (P-2) (RP Series), Vinyl Trim.

h. **Resilient Channels**: RC-1 Resilient Channel.

i. **Steel Studs**: USG Steel Studs (style) (length).

j. **Steel Runners**: USG Steel Runners (style) (length).

k. **USG Direct Suspension System**: Main Beam MB-12, Cross Furring Channel CFC-4, Cross Beam CB-4, Wall Angle.

l. **Metal Furring Materials**: (USG Metal Furring Channels and Clips) (USG Adjustable Wall Furring Brackets) (USG Cold-Rolled Channels 3/4" or 1 1/2") (USG Z-Furring Channels).

m. **Drywall Screws**: (length) USG Screw Type (S, S-12, S-16, S-18, R, W or G), SUPER-TITE Screws.

n. **Drywall Nails**: (length) (type) (USG Matching Color Nails to match finish of TEXTONE Vinyl Panels) (conforming with "Recommended Performance Standards for Nails for Gypsum Wallboard", adopted by Gypsum Association and the iaWCC/GDCI) (as specified in fire-resistive construction.)

o. **Control Joint**: USG Control Joint No. 093.

p. **Drywall Adhesives**: (DURABOND Joint Compound 210 or 90.) (USG Ready-Mixed Joint Compound—All Purpose or Taping).

q. **W/R Compound**: (for W/R Gypsum Panels) SHEETROCK Brand W/R Compound.

r. **Joint Treatment**: PERF-A-TAPE Reinforcing Tape.

DURABOND Joint Compound (45, 90, 150, 210, 300).

USG Joint Compound (Taping, Topping, All Purpose).

USG Ready-Mixed Joint Compound (Taping, Topping, All Purpose).

s. **Caulking**: USG Acoustical Sealant.

t. **Concrete Finishing Compound**: (DURABOND Joint Compound) (COVER COAT Drywall Compound) (as ready-mixed) (with sand additive).

u. **Cavity Shaft Wall Materials**: USG Shaft Wall Liner, USG Steel J-Runners (style), USG Steel C-H Studs (style), USG Steel E-Studs (style), USG Steel J-Struts (style).

v. **Cavity-type Area Separation Wall Materials**: USG Gypsum Liner Panels, USG Steel J-Runners (style), USG Steel C-H Studs and E-Studs (style).

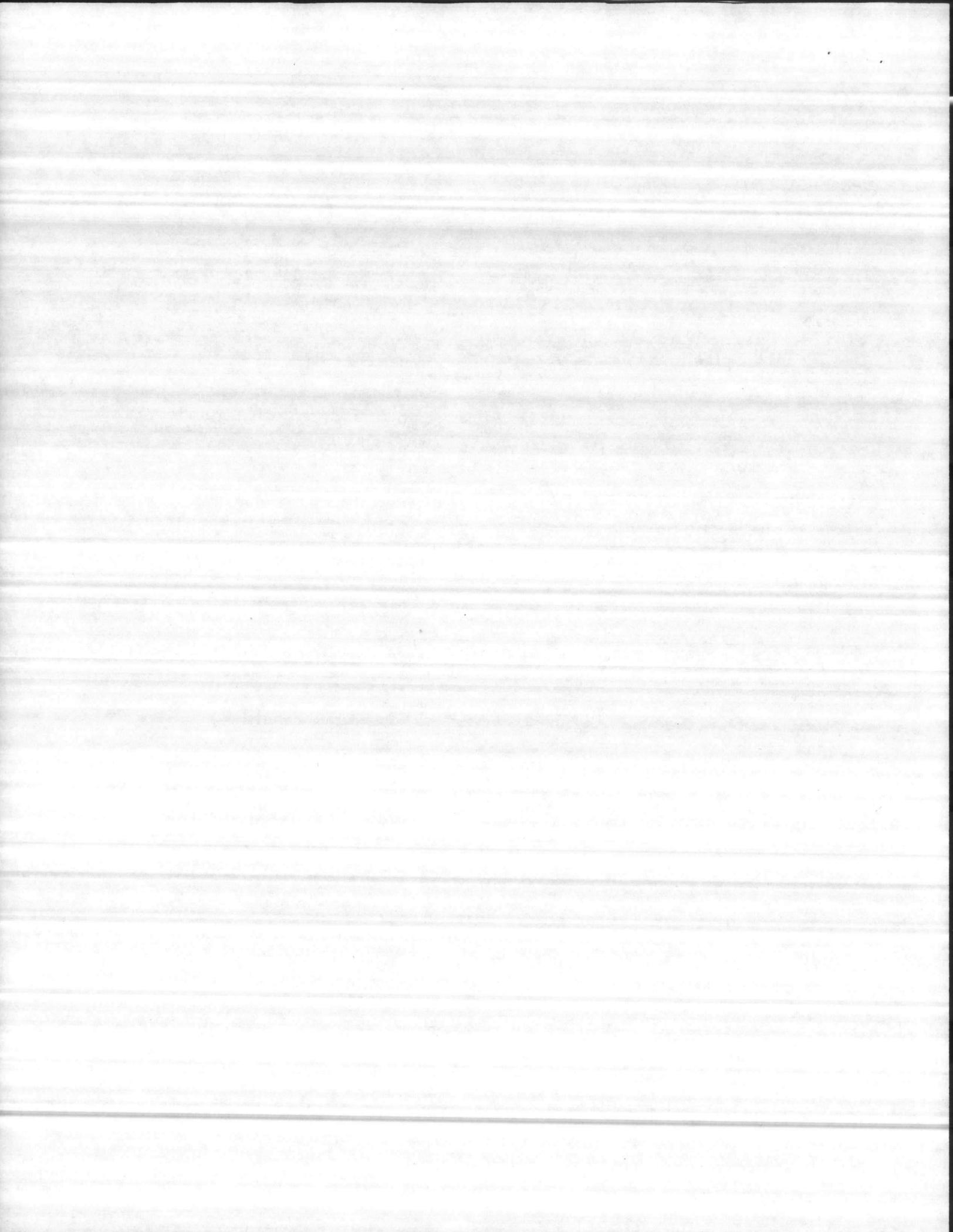
w. **Solid-type Area Separation Wall Materials**: USG Gypsum Liner Panels, USG Steel J-Runners (style), USG Steel H-Studs and C-Studs (style).

Part 3: execution

3.1 gypsum panel application

3.1.1 basic single-layer system, treated joints

a. Position all ends and edges of all gypsum panels over framing members, except when joints are at right angles to framing members as in perpendicular application or when end joints are backblocked.



"It is hereby certified that the Gypsum Panels & Accessories SA-927 (material) shown and marked in this submit- tal is that proposed to be incorporated into

Contract Number N62470-81-C-1766 in compliance with the Contract drawings and specifications, can be installed in the allocated spaces, and is submitted Government

9.5/UD

b. Apply gypsum panels first to the ceiling and then to the walls. Extend ceiling board into corners and make firm contact with top plate. To minimize end joints, use panels of maximum practical lengths. Fit ends and edges closely, but not forced together. Stagger end joints in successive courses with joints on opposite sides of a partition placed on different studs.

c. Attach panels to framing supports by: (Standard Single Nailing Method) (Adhesive Application) (Double Nailing Method) (Power-driven USG Screws). Space fasteners not less than 3/8" from edges and ends of panels and drive as recommended for specified fastening method. Drive fasteners in field of panels first, working toward ends and edges. Hold panel in firm contact with framing while driving fasteners. Drive fastener heads slightly below surface of gypsum panels in a uniform scribe without breaking face paper.

d. Cut ends, edges, scribe or make cutouts within field of panels in a workmanlike manner.

e. Install trim at all internal and external angles formed by the intersection of either panel surfaces or other surfaces. Apply corner bead to all vertical or horizontal external corners in accordance with manufacturer's directions.

(Multi-layer systems: see pertinent U.S.G. System Folders).

3.1.2 SHEETROCK Brand W/R Panels—(see U.S.G. Folder SA-924).

3.1.3 lamination of SHEETROCK Brand Gypsum Panels to interior monolithic concrete and unit masonry

- a. The masonry or concrete shall be clean, smooth and dry prior to application. If wood base is to be used, attach wood nailer to wall before lamination is started.
- b. Cut face panels to allow continuous clearance (1/8" to 1/4") at floor. Apply DURABOND Joint Compound, USG Ready-Mixed Joint Compound—All Purpose or Taping at center and near each panel edge in strips consisting of 4 beads, 3/8" wide x 1/2" high and spaced 1 1/2" to 2" o.c. Position panels vertically over wall surface, press into place and provide temporary support until adhesive is hardened.
- c. Install trim at all intersections of panel surfaces with other surfaces.
- d. Lamination to interiors below grade or directly to interior surfaces of exterior walls, and lamination where exposure to moisture is extreme or continuous, are not recommended construction.

3.2 RC-1 Resilient Channel erection
(See specifications in U.S.G. Folder SA-924).

3.3 steel stud and runner erection
(See specifications in U.S.G. Folder SA-923).

3.4 metal furring channel erection
(See specifications in U.S.G. Folder SA-923).

3.5 control joint installation
Attach USG Control Joint No. 093 with Bostitch 9/16" "G" staples or equal spaced not over 6" apart in each flange. Cut end joints square and align for neat fit. Remove protective tape when joint treatment is completed.

3.6 fastener and adhesive application
3.6.1 USG Drywall Screws

Power-drive with an electric screwdriver so screwheads provide a slight depression below surface of gypsum panels without breaking face paper. Do not drive screws closer than 3/8" from edges and ends of gypsum panels.

3.6.2 nails
Drive nails with heads slightly below gypsum panel surface in a dim-

ple formed by crowned face of hammer. Drive nails no closer than 3/8" from edges and ends of panel.

3.6.3 adhesive
Mix and apply in accordance with manufacturer's directions, and as follows:

a. Apply DURABOND Joint Compound-210 or 90 in the prescribed manner to back of face panels to be laminated. Laminate face panels to (base layer panels) (coreboard) using moderate pressure and temporary nailing or shoring to insure adequate bond.

b. Apply drywall stud adhesive in a continuous 3/8" bead at center of attachment to face of framing members. Where two gypsum panels meet on a framing member, apply two parallel beads on face of framing at panel joints. Do not apply adhesive to members such as bridging, diagonal bracing, etc., into which no supplemental fasteners will be driven. Immediately following contact of panel to adhesive, apply necessary fasteners 16" o.c. around perimeter of panel, 3/8" away from edges and ends. On ceilings only, apply one temporary field fastener per framing member at mid-width of board; remove after 24 hours. With predecorated panels pre-bowed and applied vertically, use permanent fasteners only at top and bottom of panel.

c. Apply laminating adhesive in strips to center and along both edges of gypsum face panel. Apply strips with a notched metal spreader having four 1/4"x1/4" minimum notches spaced max. of 2" o.c. Position face panels against base panels; fasten at top and bottom (vertical application) as required. For laminated ceilings, space fasteners 16" o.c. along edges and ends, with one permanent field fastener per framing member installed at mid-width of panel. Press panel into place with firm pressure to insure bond; reimpact with 24 hr. if necessary.

d. Apply liquid contact adhesive with a short nap paint roller to cover both contact surfaces. Let adhesive air dry to the touch, about 30 minutes depending on temperature and humidity, until color turns darker. Apply panels as soon as possible after drying occurs. On walls, fasten 16" o.c. at top and bottom (vertical application) as required. In ceiling lamination, apply permanent supplementary fasteners at each corner of panel, and along edges spaced max. 48" o.c. Press panel into place with firm pressure to insure bond.

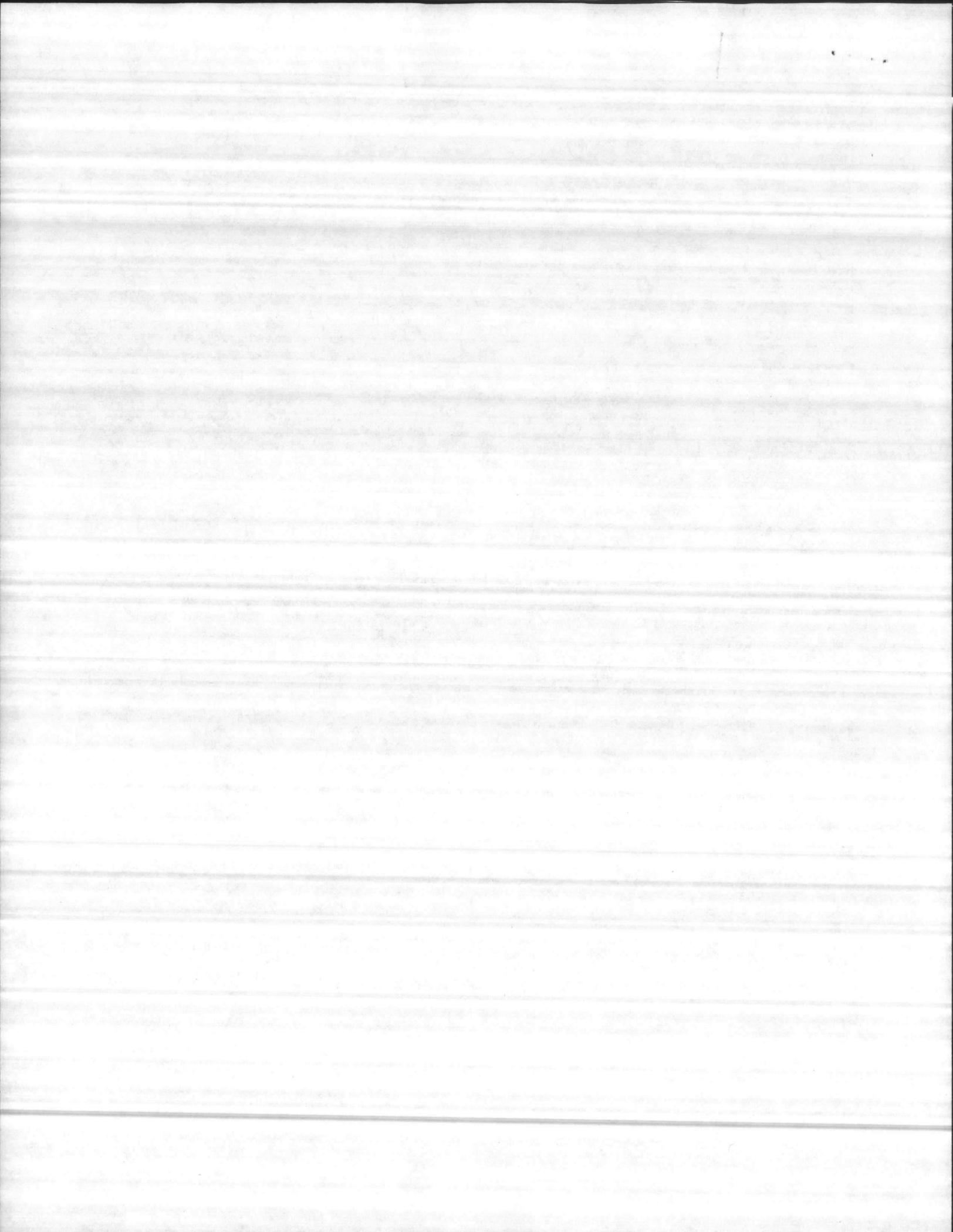
e. Apply construction adhesive in continuous 3/8" beads to framing. On floors, install plywood panels across joists with 1/16" gap between panels and end joints staggered. Where panel ends butt, apply two beads so each panel is bonded. Within 15 min. after applying adhesive, position panels and nail to support with 6d annular ring or 8d common nails spaced 12" o.c. Apply adhesive to long edge of installed panels to bond next row of panels.

On walls, apply a continuous 3/8" adhesive bead to center of studs to within 6" of board perimeter. At panel joints, apply two adhesive beads—one at a time—as each panel is installed. Do not apply adhesive at inside corners or to top and bottom plates, bridging, bracing and fire stops. Apply no more adhesive than can be covered in 15 min. Set panel in place, fasten 16" o.c. along top and bottom of panel and impact by hand along each stud.

3.7 pre-fill application

a. Mix DURABOND 90 Joint Compound according to directions on bag. Do not overmix, or use extremely cold water or cold joint compound.

b. Pre-fill all "V"-grooves formed by abutting tapered eased edges of SHEETROCK Brand SW Panels with DURABOND 90 Joint Compound using a flexible 5" or 6" joint finishing knife or Ames Pre-Fill Tool. Fill "V" joint flush and wipe off excess compound beyond the "V" groove, leaving a clear depression to receive tape. Allow pre-fill to harden prior to the next application (tape or embedding coat).



3.8 joint treatment application

- a. Mix joint compound in strict accordance with manufacturer's recommendations.
- b. Apply taping or embedding compound in a thin uniform layer to all joints and angles to be reinforced. Immediately apply PERF-A-TAPE Reinforcing Tape centered over joint and seated into compound. Sufficient compound—approx. 1/64" to 1/32"—must remain under the tape to provide proper bond. Follow immediately with a thin skim coat to embed tape, but not to function as a second coat. Fold and embed tape properly in all interior angles to provide a true angle. The tape or embedding coat must be thoroughly dry prior to application of second coat (Exception: DURABOND Joint Compounds need only have hardened prior to application of next coat.)
- c. Apply second coat of joint compound over embedding coat, filling panel taper flush with surface; cover tape and feather out slightly beyond first coat. On joints with no taper, cover the tape and feather out at least 4" on either side of tape. Allow second coat to dry thoroughly prior to application of finish coat. (Exception: DURABOND Joint Compounds need only have hardened prior to second coat application.)
- d. Spread finish coat evenly over and extend slightly beyond second coat on all joints and feather to a smooth uniform finish. Over tapered edges, do not allow finished joint to protrude beyond plane of the surface. Apply a finish coat to cover tape and taping compound at all tapered angles and provide a true angle. Where necessary, sand between coats and following the final application of compound to provide a smooth surface ready for decoration.

3.9 finishing fasteners

Apply a taping or all-purpose type compound to fastener depressions as the first coat. Follow with a minimum of two additional coats of topping or all-purpose compound, leaving all depressions level with the plane of the surface.

3.10 finishing beads and trims

- a. Apply first coat to all bead and trim and properly feather out from ground to plane of surface. Compound must thoroughly dry prior to application of second coat. (Exception: DURABOND Joint Compounds need only have hardened prior to application of next coat.)
- b. Apply second coat in same manner as first coat, extending compound slightly beyond onto face of panel. Compound must be thoroughly dry prior to application of finish coat.
- c. Apply finish coat to all bead and trim, extending compound slightly beyond the second coat and properly feathering from ground to plane or surface. Sand finish as necessary to provide a flat smooth surface ready for decoration.

3.11 exterior joint system application

- a. Mix DURABOND Joint Compound according to directions on the bag. Do not overmix, nor use in temperatures below 45°F.
- b. Pre-fill joints of USG Exterior Gypsum Ceiling Board with DURABOND

Compound. After pre-fill has hardened, embed PERF-A-TAPE Reinforcing Tape centered over joint. When compound has hardened, immediately apply fill coat.

c. Apply DURABOND Compound over flanges of USG Control Joints, metal beads and trim. Spot fastener heads.

d. After fill coat has hardened, apply finishing coat of DURABOND Compound. Completely cover all joints, angles, beads, control joints and fasteners.

Note: After DURABOND Compound has dried, apply one coat oil-based primer-sealer and one coat exterior oil or latex paint.

3.12 filling and finishing interior concrete

a. Concrete surfaces shall be clean, smooth, dry and free from contaminants and exposed metal protected with a rust-inhibitive primer and allowed to dry.

b. Fill offsets and voids with a DURABOND Joint Compound.

c. Mix (COVER COAT Compound) (DURABOND Joint Compound) according to manufacturer's directions and apply to concrete (ceilings) (columns) before interior partitions are erected. Coordinate application of USG No. 800 Corner Bead on angles and corners as required, embedding and covering both flanges with a smooth fill of compound 3" to 4" wide. Apply sufficient coats to obtain a smooth surface. With DURABOND Compound, apply a skim coat of COVER COAT Compound or USG Ready-Mixed Joint Compound over entire surface. After compound has dried, sand to a smooth surface suitable for decoration.

Trademarks: The following trademarks used herein are owned by United States Gypsum Company: USG, SHEETROCK, DURABOND, FIRECODE, TEXTONE, THERMAFIBER, DUR-A-BEAD, ULTRAWALL, PERF-A-TAPE, COVER COAT, RC-1, SUPER-TITE, GYP-LAP. FOAMULAR is a trademark of UC Industries.

Note: All products described here may not be available in all geographic markets. Consult your local U.S.G. sales office or representative for information.

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It is hereby certified that the information (material shown and marked in this submittal) is that proposed to be incorporated into Contract Number N62470-81-C-1766, in compliance with the Contract drawings and specifications, can be installed in the allocated spaces, and is submitted Government approval.

Certified by D.S.
Date 5-11-84

General Offices: 101 South Wacker Drive, Chicago, Illinois 60606
Printed in U.S.A.

9P gypsum panels & accessories
 1982-1

