

January 30, 2020

Upward Elementary School Cafeteria Addition and Renovations Henderson County Public Schools Henderson County

Addendum #3

NOTIFICATIONS:

• A CAD file of the site has been distributed to General Contractors bidding this project. It is the intention of the civil engineer that this CAD file be distributed by General Contractors upon request to any sub-contractor interested in bidding the project. An Electronic File Transfer document is included at the end of this addendum. Use of the CAD file implies acceptance and agreement with the Electronic File Transfer.

ADDENDA ITEMS – APPROVED MANUFACTURERS

All approved manufacturers listed below are subject to compliance with the plans and specifications. <u>Compliance with the plans and specifications is the responsibility of the manufacturer and contractor</u>.

Sound Design Acoustical Wall Panels AcousTech Wall Panels

ADDENDA ITEMS – SPECIFICATION SECTIONS

Sections listed below represent additional sections not previously included <u>or</u> sections which were previously issued and should be replaced with the attached.

None

ADDENDA ITEMS – SPECIFICATIONS ITEMS

- AS.09 Section 010000 General Conditions Overview Paragraph J Construction Fencing: Add the following: Construction fencing is to be 6' high with drive-through gates as required.
- AS.10 Section 095113 Acoustical Panel Ceiling Paragraphs 2.2.H Replace with the following: H. Noise Reduction Coefficient (NRC): 0.70
- AS.11 Section 098433 Acoustical Wall Panels Paragraph 3.5.A.4 Replace with the following: Nominal Overall Panel Thickness and Noise Reduction coefficient: <u>2 inch</u>, not less than NRC 1.0 for Type A mounting per ASTM E.795.

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ADDENDA ITEMS – DRAWINGS

The following sheets have been modified or added to the contract documents and have been included in their entirety with modifications noted.

Sheet G021 UL LISTINGS AND WALL TYPES (ADDED)

ADDENDA ITEMS – DRAWING ITEMS

AD.01 Sheet A100 Overall Floor Plan

Add the following General Note:

The contractor shall include all costs associated with site repairs due to construction related activities. This includes repairs to existing grass, landscaped and paved areas within the construction parking, laydown and circulation areas or areas otherwise damaged by construction activities. Exact locations of these areas will be coordinated onsite with the Contractor, Architect and Owner prior to the start of construction. The existing condition of these areas is to be documented prior to the start of construction. Repairs should be made with like materials and methods to match existing.

AD.02 Sheet A800 Doors, Windows, Schedule and Details

Detail E1/A800 Door Type DHG:

This door type is to be hollow metal.

AD.03 Sheet A901 Finish Plan and Schedule

Drawing A1/A901 Add the following: Provide a 45 degree corner guard at the outside corner of the interior wall of the new corridor.

SD.01 Sheet S301 Roof Framing Details

Detail 7: Change the metal studs to the following: 8" Deep, 18ga Studs @ 16" o.c – '800S162-43'

SD.02 Sheet S301 Roof Framing Details

Detail 5 & 6: In lieu of deflection/slip-track at the gypsum board shaft wall assembly provide the following:

At the top of the shaft wall assembly provide a ³/₄" joint filled with mineral wool

ADDENDA ITEMS - RFI QUESTIONS AND ANSWERS

- Plan Sheets S101 and S501 Can you please provide the required locations for lintels L3 and L4. Plan sheet S101 calls out the locations for lintels L1 and L2, but not L3 and L4.
 RESPONSE: Reference the Miscellaneous Lintel Schedule on S501 for use of L4 lintels at new metal stud/masonry veneer walls at new window openings. L3 is a typical lintel for new openings in existing masonry walls. It does not apply to this project and can be omitted.
- Please confirm that the construction fencing is to be a 6' high chain link type fencing with drive-thru gate.
 RESPONSE: Construction fencing is to be 6' high. Refer to Addendum Item AS.09 above.

- What is the existing fire alarm system present in the building?
 RESPONSE: The existing fire alarm system is <u>Edwards EST2</u>
- 4. Does the owner have a current asbestos survey & report available to review? If yes could you please provide a copy prior to bud time so we can review it? RESPONSE: There is no asbestos survey and report for the building. The original building was constructed in 1992.
- 5. Will the owner salvage any of the items shown to be removed with-in the project scope? RESPONSE: The owner does not wish to salvage any of the demolition items shown in this project scope.
- 6. Is there a spot on the site where topsoil and excavation spoils can be spread versus having to haul off-site these materials?
 RESPONSE: The site may not balance and excavated material will need to be monitored by the geotechnical engineer to confirm it is acceptable to use as fill.
- 7. Since Addendum #1 clarifies that the walkway canopies shown for the base bid & alternate shall now be all new materials (columns, canopy, etc.) will we be issued a foundation design and layout from the structural engineer?
 RESPONSE: A foundation design will be provided by the structural engineer prior to shop drawing review of the pre-engineered metal canopies.
- 8. The mulched playground is closer to the existing paved play area behind the gym than what is depicted on sheet A100. Will the owner be ok with use driving over the small asphalt play area as access to the courtyard? If yes, the construction traffic will more than likely destroy the asphalt surface. If this is not ok what other avenues do we have to access the site? RESPONSE: Access to the courtyard construction area will be as shown on sheet A100. Final coordination of exact routes, location of fencing and access to paved areas will take place between the successful contractor, architect, and owner during the pre-construction meeting. In general, the area between the end of the Gymnasium and playground areas are intended for construction vehicle traffic. Refer to Addendum Item AD.01 above for further clarification.
- 9. During the office and cafeteria renovation work will all the furniture (tables, desk, chairs, file cabinets, personal items, etc.) be removed by the owner prior to the contractor starting work in this area? **BESEDUSE:** The owner will be represented for removing all EEE items from the

RESPONSE: The owner will be responsible for removing all FFE items from the construction are prior to the start of construction.

10. Has a grading or contour plan been done for the new areas of parking? If yes can we issued a copy to help with calculating the mount of fill required in these areas? If one has not been done would it be possible for the Engineer to give us a quantity (in CY) of compacted in-place lean fill to price and include in our bids?

RESPONSE: The contractor is responsible for their own takeoff. A contour plan has not been created, but the existing grades are shown on the plans and in the CAD file provided. There are also proposed spot elevations that can be used to calculate earthwork.

11. After a site visit yesterday and looking at Google maps I believe that this sheet is missing some very important building and site improvement items that will affect the "construction traffic" route shown on this plan. The sheet is missing a portable classroom, paved play court (north of the parking area) and correct location of the mulched playground. With this being said can the "construction traffic access to courtyard" shown be moved closer to the gym to help avoid the paved court and playground located north of the gym?

RESPONSE: Access to the construction area is graphically represented to be a path between the exterior wall of the gymnasium and the mulched playground areas. Refer to Addendum Item AD.01 above for additional information.

- **12.** Also, on A100 I believe that the "true north" symbol is off by 180 degrees. Is that correct? **RESPONSE: Correct**
- 13. The door schedule on sheet A800 shows door #101A as a pair of "metal doors". But the door elevation shows them as "wood doors". Which is correct?
 RESPONSE: Door 101A should be hollow metal as described in the door schedule.
 Refer to Addendum Item AD.02 above for additional information.
- 14. Sheet S301, Detail 7 calls for 6" 10-gauge metal stud, call tag indicates 18 gauge (600S162-43) and sheet A151 detail 5 calls for 8" metal studs. Can you please clarify stud size and gauge?
 RESPONSE: The metal studs detailed in 7/S301 should be 8" 18-gauge metal studs. Refer to Addendum Item SD.01 above for additional information.
- 15. Sheet S301, details 5 & 6 call for deflection track for the shaft wall system. J track is not offered in a deflection (slip) style. Can you please clarify?
 RESPONSE: Refer to Addendum Item SD.02 above for clarification.
- 16. Can you please provide a quantity for each of the two sizes (3x3 and 3x7) of acoustic wall panels

 RESONSE:
 3X7 Acoustic Wall Panels: Quantity 9

 3x3 Acoustic Wall Panels: Quantity 43
- **17.** With the note describing the S.S. corner guards says "Typ. All corners" which can be considered a little vague could you please confirm whether or not the following locations should receive corner guards?
 - a. Lower left corner of detail A1/A400?
 - b. Corners (4ea) on the bump out wall on column line "H"?
 - c. Outside 45-degree corner of the new corridor?
 - d. Other locations?

RESPONSE: Corner guards should be provided at all outside corners. Locations are shown and quantified on Sheet A901. Refer to Addendum Item AD.03 above for additional information.

- Will the existing canopy structures shown in red and plum in the sketch below remain "as-is" or be removed as neither section is noted on sheet A100?
 RESONSE: Existing canopies are to remain as is.
- **19.** Also, are we to try and attach the new canopy to the existing ones as the two systems will probably not match up?

RESPONSE: The new canopies should be designed as independent structures with no

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connection or reliance on the existing, adjacent canopies.

- 20. If Alternate #4 is not taken is it understood that the canopy system on the bus side will have two large gaps between the existing and the base bid canopies?RESPONSE: Correct
- 21. Details A5, D5 & D8 all have a note "suspended 5/8" GWB ceiling: 1-hour fire rated roof assembly" and points to the drywall ceiling. Is just the ceiling to be "1 hour" rated of the entire "roof assembly"? Either way could you please provide a UL number for whichever assembly is required? RESPONSE: The roof structure of the new cafeteria addition is 1-hour rated which includes, as part of the designated UL assembly, a layer of 5/8" gypsum board suspended at the underside of the roof structure. The Appendix B indicates this requirement and specifies a UL roof assembly P510. This information is partially provided on Sheet G022. G021 has been included in this addendum which contains the remainder of the UL listing information.
- 22. The asphalt sidewalks running on the west side (not shown on sheet A100) of the gym will be damaged by construction traffic based on the current access route shown. Can they be replaced (where necessary) with the same width and type of asphalt material?
 RESPONSE: Refer to Addendum Item AD.01 above for additional information clarifying contractor responsibility for repairs required to existing site components.
- **23.** With the extremely short time to complete the renovation of the existing cafeteria will we be allowed to do any work with-in the existing space after hours or weekends prior to the first week in June?

RESPONSE: The fine details of the construction schedule will be coordinated between the successful Contractor, Owner and Architect. The existing cafeteria provides daily, required services to students throughout the entire school year. This service can not be diminished or interrupted for construction purposes.

END OF ADDENDUM 3



ELECTRONIC FILE TRANSFER

At your request, we will provide electronic files for your use related to **"Upward Elementary School Cafeteria Addition and Renovations"** subject to the following terms and conditions:

We make no representation as to the compatibility of these files with your hardware or your software beyond the specified release of the referenced specifications.

Data contained on these electronic files are part of our instruments of service. Any use or reuse by you or by others will be at your sole risk and without liability or legal exposure to us. You agree to make no claim and hereby waive, to the fullest extent permitted by law, any claim or cause of action of any nature against us, our officers, directors, employees, agents or sub-consultants that may arise out of or in connection with your use of the electronic files.

Furthermore, you shall, to the fullest extent permitted by law, indemnify and hold us harmless against all damages, liabilities or costs, including reasonable attorneys' fees and defense costs, arising out of or resulting from your use of these electronic files.

These electronic files are not construction documents. Differences may exist between these electronic files and corresponding hard-copy construction documents. We make no representation regarding the accuracy or completeness of the electronic files you receive. In the event that a conflict arises between the signed or sealed hard-copy construction documents prepared by us and the electronic files, the signed or sealed hard-copy construction documents shall govern. You are responsible for determining if any conflict exists. By your use of these electronic files, you are not relieved of your duty to fully comply with the contract documents, including, and without limitation, the need to check, confirm and coordinate all dimensions and details, take field measurements, verify field conditions and coordinate your work with that of other contractors for the project.

Because information presented on the electronic files can be modified, unintentionally or otherwise, we reserve the right to remove all indication of ownership and/ or involvement from each electronic display.

Under no circumstances shall delivery of the electronic files for use by you be deemed a sale by us, and we make no warranties, either express or implied, of merchantability and fitness for any particular purpose. In no event shall we be liable for any loss of profit or any consequential damages as a result of your use or reuse of these electronic files.

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· -		1	2		3	4			
CONDITIONS	DESIGN NO. U4	19 CONTINUED				Gypsum Board Protec	tion on Each Side of Wall		
OF THESE H	thick Types IP-X3 or L UNITED STATES GYI FRX-G, IP-AR, IP-X2, USG BORAL DRYWA	ILTRACODE PSUM CO — 1/2 in. thick T IPC-AR; 3/4 in. thick Types LL SFZ LLC — 1/2 in. Type	R; WRC, 5/8 in. thick Type AR, C, IP-AR, IP-X1 ype C, IP-X2, IPC-AR or WRC; 5/8 in. thick Typ s IP-X3 or ULTRACODE e C; 5/8 in. Types C, SCX, SGX, ULTRACODE C, IP-X2, IPC-AR or WRC; 5/8 in. thick Type AR	be SCX, SGX, SHX, WRX, IP-X1, AR, C, WRC		Min Stud Depth, in. Items 2 through 20	No. of Layers & Thkns of Panel		
ANCI		thick Types IP-X3 or ULTR		, 0, IF-AR, IF-A1, IF-A2, IF0-AR, 30A, 3NA,	1	3-5/8	1 layer, 5/8 in. thick		
CEP1	(Item 4) is 3 in., and tv	vo layers of gypsum board p	Nonbearing Wall Rating is limited to 1 Hr. Min. banels (1/2 in. or 5/8 in. thick) shall be attached	to furring channels as described in Item 6. One		1-5/8	2 layers, 5/8 in. thick 3 layers, 5/8 in. thick		
S AC			 attached to opposite side of stud without fur 5/8 in. thick, 24 to 54 in. wide, applied horiz 	·	4	1-5/8	4 layers, 5/8 in. thick		
IUTE	assembly. Secured as		, — 5/6 пт. ппок, 24 to 54 пт. wide, аррней поп2	officing as the outer layer to one side of the	<u> </u>	1 5/5	+ loyers, sys in thek		
FORM CONSTITUTES ACCEPTANCE G	CGC INC — Type SH UNITED STATES GYI USG MEXICO S A DE	PSUM CO — Type FRX-G,	SHX.		UNITED STATES GYPS	UM CO — 5/8 in. thick Type ULIX			
N. POSSESSION IN ANY	thick products are spe as alternate to all 5/8 i gypsum panels with be opposite sides of study perimeter and 12 in. O RAY-BAR ENGINEER 5C. Gypsum Board* – tapered edges, applied Type S coated steel so edge of the board at th 4 in. from the board ec over studs and stagge the studs with 1 in. Ion	cified. For direct attachmen n. or 3/4 in. shown in Item 5 eveled, square or tapered e s. Gypsum board secured to C in the field. To be used w ING CORP — Type RB-LB - (For Use With Item 2B) — d vertically or horizontally. (1) crews spaced 8 in. OC start he center of each board. Gy lge. Fasteners shall not per red one stud cavity on opporg g Type S coated steel screit	- Rating Limited to 1 Hour. 5/8 in. thick, 48 in. w Vertical Application) - The gypsum board is to be sing 4 in. from the edge of the board at the vertic psum boards are to be secured to the top and be thetrate through both the stud and the track at th site sides of studs. (Horizontal Application) - The ws spaced 8 in. OC starting 4 in. from the edge	th Item 3) — Nom 5/8 in. or 3/4 in. may be used oble. Nom 5/8 in. or 3/4 in. thick lead backed over studs and staggered min 1 stud cavity on g Type S-12 steel screws spaced 8 in. OC at scs or Tabs (see Item 12). ide, Gypsum panels with beveled, square or e installed on each side of the studs with 1 in. In cal edges and 12 in. OC starting 6 in. from the pottom track with screws spaced 8 in. OC starti e same time. Vertical joints are to be centered the gypsum board is to be installed on each side of the board at the vertical edges and 12 in. OC	 channels (Item 7). Single panels are applied horizo layer systems: First layer in. long for 1/2 in., 5/8 in. layer systems: First layer spaced 24 in. OC. Third I offset min 6 in. from layer in. long for 1/2 in., 5/8 in. spaced 24 in. OC. Fourth in. from layer below. 7. Furring Channels — (Corrosion-protected steel, screws. Not for use with 1) 	wn) — For use with Items 2 and 2F - Type S layer systems: 1 in. long for 1/2 and 5/8 in. th ntally, or 8 in. OC along vertical and bottom e - 1 in. long for 1/2 and 5/8 in. thick panels or 2 thick panels or 2-1/4 in. long for 3/4 in. thick p - 1 in. long for 1/2 in., 5/8 in. thick panels, spa ayer- 2-1/4 in. long for 1/2 in., 5/8 in. thick panels, spa ayer- 2-1/4 in. long for 1/2 in., 5/8 in. thick panels, spa ayer- 2-1/4 in. long for 1/2 in., 5/8 in. thick panels, spa ayer- 2-1/4 in. long for 1/2 in., 5/8 in. thick panels, spa ayer- 2-1/4 in. long for 1/2 in., 5/8 in. thick panels, spa ayer- 2-5/8 in. long for 1/2 in. OC. Third layer- 2 layer- 2-5/8 in. long for 1/2 in. thick panels or Optional, Not Shown, for single or double layer spaced vertically a max of 24 in. OC. Flange Item 5A and 5E.	ick panels or 1-1/4 in. long for 3/4 in. thick p dges and 12 in. OC in the field when panels I-1/4 in. long for 3/4 in. thick panels, spaced banels, spaced 16 in. OC with screws offset ced 24 in. OC. Second layer- 1-5/8 in. long nels or 2-5/8 in. long for 5/8 in. thick panels, ong for 1/2 in., 5/8 in. thick panels, spaced 2 -1/4 in. long for 1/2 in. thick panels or 2-5/8 3 in. long for 5/8 in. thick panels, spaced 12 systems) — Resilient furring channels fabr		
PROSECUTIO	spaced 8 in. OC startir	ng 4 in. from the board edge	nter of each board. Gypsum boards are to be se e. Fasteners shall not penetrate through both th er section VI of Volume 1 in the Fire Resistive D	e stud and the track at the same time. All	channels and Steel Fram a. Furring Channels — Fo	 (Optional on one or both sides, not shown, fing Members as described below: bormed of No. 25 MSG galv steel. 2-9/16 in. or to studs as described in Item b. Gypsum boa 	2-23/32 in. wide by 7/8 in. deep, spaced ma		
AL PI		PSUM CO — Type SCX, S	GX.		5A and 5E.	rs* — Used to attach furring channels (Item 7/	Ũ		
TO LEGAL	USG MEXICO S A DE) — 5/8 in. thick, 48 in. wide, applied vertically o	(2.75) clips secured to stu clips secured to studs wit clips, RSIC-1 and RSIC-V	(2.75) clips secured to studs with No. 8 x 1-1/2 in. minimum self-drilling, S-12 steel screw through the center grommatic clips secured to studs with No. 8 x 9/16 in. minimum self-drilling, S-12 steel screw through the center hole. Furring clips. RSIC-1 and RSIC-V clips for use with 2-9/16 in. wide furring channels. RSIC-1 (2.75) and RSIC-V (2.75) clips				
SUBJECT TO	use with Items 1 and 2				5	L C — Types RSIC-1, RSIC-V, RSIC-1 (2.75	i), RSIC-V (2.75).		
		PSUM CO — Type USGX LL SFZ LLC — Type USG>	(Framing Members on onl a. Furring Channels — Fo	 7B. Framing Members* — (Optional, Not Shown) — As an alternate to Item 7, for single or double layer systems, for Framing Members on only one side of studs as described below: a. Furring Channels — Formed of No. 25 MSG galv steel, spaced 24 in. OC perpendicular to studs. Channels security of the study of the study of the study of the study of the study. 				
OR REPRODUCTION IS E	thick products are spe gypsum panels with be opposite sides of stude	5E. Gypsum Board* — (Not Shown) — (As an alternate to Item 5 when used as the base layer on one or both sides of wall when 1/2 in. or 5/8 in thick products are specified, For direct attachment only to steel studs Item 2A, not to be used with Item 3). Nominal 5/8 in. thick lead backed gypsum panels with beveled, square or tapered edges, applied vertically. Vertical joints centered over studs and staggered min 1 stud cavity on opposite sides of studs. Wallboard secured to studs with 1-1/4 in. long Type S-12 (or No. 6 by 1-1/4 in. long bugle head fine driller) steel screws spaced 8 in. OC at perimeter and 12 in. OC in the field.							
REF E		D BURNING CO INC, DBA			KINETICS NOISE CONT	ROL INC — Type Isomax			
USE	square or tapered edg edges and 12 in. OC in be a minimum 3-5/8 in	es, applied vertically, and fa n the field. Vertical joints ce	— For use with Items 1E and 2E and limited to astened to the steel studs with 1 in. long Type S intered over studs and staggered one stud cavity	screws spaced 8 in. OC along vertical and bot	ed, Item 7, furring channels a om a. Furring Channels — Fo hall secured to studs as desc b. Steel Framing Member	– (Not Shown) — (Optional on one or both sid and Steel Framing Members as described belo ormed of No. 25 MSG galv steel. 2-3/8 in. wid ribed in Item b. Gypsum board attached to fur rs* — Used to attach furring channels (Item 7, 2 in. minimum self-drilling, S-12 steel screw th	ow: e by 7/8 in. deep, spaced max. 24 in. OC per ring channels as described in Item 6. Not fo Aa) to studs (Item 2). Clips spaced max. 48		
IHOI		PSUM CO — 5/8 in. thick T LL SFZ LLC — 5/8 in. thick			PLITEQ INC — Type GE	NIECLIP			
T © 2020 ANY UNAUTHORIZED D	applied vertically or ho studs and staggered o Horizontal joints need staggered. Horizontal	rizontally, as specified in th ne stud cavity on opposite not be backed by steel fram edge joints and horizontal b ie 2 hr, 3 hr and 4 hr ratings) — For use with Items 1E and 2E only, Gypsur e table below and fastened to the steel studs as sides of studs. Vertical joints in adjacent layers ning. Horizontal edge joints and horizontal butt jo utt joints in adjacent layers (multilayer systems) are as follows: card Protection on Each Side	er Framing Members as des a. Furring Channels — Fo Item b. Ends of adjoining attached to furring channe b. Steel Framing Member coarse drywall screw with	ers* — (Optional on one or both sides, not sh scribed below: ormed of No. 25 MSG galv steel. Spaced 24 i channels overlapped 6 in. and tied together w els as described in Item 6. Not for use with Ite rs* — Used to attach furring channels (Item 71 n 1 in. diam washer through the center hole. F STEMS — RESILMOUNT Sound Isolation Cli	n. OC perpendicular to studs. Channels sec vith double strand of No. 18 AWG galvanize em 5A and 5E. Da) to studs. Clips spaced 48 in. OC., and s urring channels are friction fitted into clips			
RIGH	-	and other the			8. Joint Tape and Compo	und — Vinyl or casein, dry or premixed joint o	compound applied in two coats to joints and		
	Rating, Hr	Min Stud Depth, in. Item 2E	No. of Layers & Thickness of Panel	Min Thkns of Insulation (Item 4)	omitted when gypsum pa 9. Siding, Brick or Stucco	de, embedded in first layer of compound over nels are supplied with a square edge. 	or steel siding, brick veneer or stucco, mee		
NOVUS ARCHITECTS INC.	2	1-5/8	2 layers, 1/2 in. thick	Optional	code agencies, installed o screws, not more than ea	over gypsum panels. Brick veneer attached to ich sixth course of brick.	studs with corrugated metal wall ties attach		
IEC	2	1-5/8	2 layers, 5/8 in. thick	Optional	10. Caulking and Sealant	s* — (Optional, Not Shown) — A bead of aco	ustical sealant applied around the partition p		
RCH	3	1-5/8	3 layers, 1/2 in. thick	Optional	UNITED STATES GYPS	UM CO — Type AS			
US A	3	1-5/8	3 layers, 5/8 in. thick	Optional	0.125 in. Strips placed on	(Not Shown, For Use With Item 5B) — Lead the interior face of studs and attached from t	he exterior face of the stud with two 1 in. lor		
	4	1-5/8	4 layers, 5/8 in. thick 4 layers, 1/2 in. thick	Optional	specification QQ-L-201f,	the strip and one at the bottom of the strip. Le Grade "C". Lead batten strips required behind Required behind vertical joints.			
- ARE PROPERTY OF	or ULTRACODE UNITED STATES GYI X2, IPC-AR, ULIX; 3/4 USG BORAL DRYWA USG MEXICO S A DE	ck Type C, IP-X2 or IPC-AF PSUM CO — 1/2 in. thick T in. thick Types IP-X3 or UL LL SFZ LLC — 1/2 in. Type C V — 1/2 in. thick Type C	R;, 5/8 in. thick Type AR, C, IP-AR, IP-X1, IP-X2 ype C, IP-X2, IPC-AR or; 5/8 in. thick Type SC	2, IPC-AR, SCX, SHX, or; 3/4 in. thick Types IF K, SGX, SHX, IP-X1, AR, C, , FRX-G, IP-AR, I	In the second se	 (Not Shown, For Use With Item 5H) — Lea of studs and attached to the stud with two mi m of the strip or with one min. 1 in. long min. eeting the Federal specification QQ-L-201f, G and optional at remaining stud locations. (Not Shown, For Use With Item 5B) — Used in. diam by max 0.125 in. thick lead discs cor lead tabs placed on gypsum boards (Item 5B) 	n. 1 in. long min. Type S-8 pan head steel s Type S-8 pan head steel screw at the top of irades "B, C or D". Lead batten strips require d in lieu of or in addition to the lead batten st npression fitted or adhered over steel screw		
ON THIS SHEET		- (Not Shown) — (As an alt	ernate to Item 5 when used as the base layer of to steel studs Item 2A, (not to be used with Iter		discs or tabs to have a pu ick 12A. Lead Discs — (Not	urity of 99.9% meeting the Federal specification Shown, for use with Item 5H) — Max 5/16 in. discs to have a purity of 99.5% meeting the F	n QQ-L-201f, Grade "C". diam by max 0.140 in. thick lead discs com		
B IED	to all 5/8 or 3/4 in. sho beveled, square or tap sides of studs. Wallbox Gypsum board secure the field. For Joint Cor	wn in Item 5, Wallboard Pro ered edges, applied vertica ard secured to studs with 1- d to 20 MSG steel studs Ite	otection on Each Side of Wall table. Nom 5/8 or Ily. Vertical joints centered over 20 MSG steel s 1/4 in. long Type S-12 steel screws spaced 8 in m 2B with 1-1/4 in. long Type S-12 steel screws used with Lead Batten Strips (see Item 11A) or I	3/4 in. thick lead backed gypsum panels with tuds and staggered min 1 stud cavity on oppos i. OC at perimeter and 12 in. OC in the field. s spaced 8 in. OC at perimeter and 12 in. OC ir	te 13. Lead Batten Strips — Strips placed on the face strip and one at the botton have a purity of 99.9% m	(Not Shown, For Use With Item 5E) — Lead of studs and attached to the stud with two mi m of the strip or with one min. 1 in. long min. eeting the Federal specification QQ-L-201f, G 5E) and optional at remaining stud locations.	n. 1 in. long min. Type S-8 pan head steel s Type S-8 pan head steel screw at the top of		
ATIONS DEPIC	in Item 5. Steel stud m CGC INC — Type ULX UNITED STATES GYI	iinimum depth shall be as ir < PSUM CO — Type ULX	— Nom. 5/8 in. thick gypsum panels with bevelondicated in Item 5.	of stud, the stud folded ba boards, Item 5E) will pene	nown, For Use With Item 5E) — 2 in. wide, 5 i ack flange, and the back face of the stud. Table trate the steel stud. Lead tabs to have a purite with standard adhesive tape if necessary.	s required at each location where a screw (
DRAWINGS, AND SPECIFICATIONS A	5J. Gypsum Board* — thick products are spe panels with beveled, s sides of studs. Wallboa 12 in. OC in the field. I Lead batten strips, mir construction adhesive nominal 3/8 in. diam by 99.9% meeting the Fe	USG MEXICO S A DE C V — Type ULX 5J. Gypsum Board* — (Not Shown) — (As an alternate to Item 5 when used as the base layer on one or both sides of wall when 1/2 in. or 5/8 in thick products are specified, For direct attachment only to steel studs Item 2A, not to be used with Item 3). Nom 5/8 in. thick lead backed gypsum panels with beveled, square or tapered edges, applied vertically. Vertical joints centered over studs and staggered min 1 stud cavity on opposite sides of studs. Wallboard secured to studs with 1-1/4 in. long Type S-12 steel screws gypsum panel steel screws spaced 8 in. OC at perimeter and 12 in. OC in the field. Lead batten strips required behind vertical joints of lead backed gypsum wallboard and optional at remaining stud locations. Lead batten strips, min 2 in. long Type S-12 pan head steel screws, one at the top of the strip and one at the bottom of the strip. Lead discs, nominal 3/8 in. diam by max 0.085 in. thick. Compression fitted or adhered over the screw heads. Lead batten strips and discs to have a purity of 99.9% meeting the Federal specification QQ-L-201f, Grade "C". RADIATION PROTECTION PRODUCTS INC — Type RPP - Lead Lined Drywall							
ALL DESIGNS, D	applied vertically or ho adjacent layers (multila horizontal butt joints or	rizontally. Vertical joints cer ayer systems) staggered on n opposite sides of studs ne	ernate to Item 5) — Nom. 5/8 in. thick gypsum p ntered over studs and staggered one stud cavity e stud cavity. Horizontal joints need not be back eed not be staggered. Horizontal edge joints and ayers for the 1 hr, 2 hr, 3 hr and 4 hr ratings are	y on opposite sides of studs. Vertical joints in ked by steel framing. Horizontal edge joints and I horizontal butt joints in adjacent layers (multila					

Board Protection on Each Side of Wall

in. ough 20	No. of Layers & Thkns of Panel	Min Thkns of Insulation (Item 4B)	
	1 layer, 5/8 in. thick	3-1/2 ln.	
	2 layers, 5/8 in. thick	Optional	
	3 layers, 5/8 in. thick	Optional	
	4 layers, 5/8 in. thick	Optional	

be ULIX

4

2 and 2F - Type S or S-12 steel screws used to attach panels to studs (Item 2) or furring for 1/2 and 5/8 in. thick panels or 1-1/4 in. long for 3/4 in. thick panels, spaced 8 in. OC when ertical and bottom edges and 12 in. OC in the field when panels are applied vertically. Two in. thick panels or 1-1/4 in. long for 3/4 in. thick panels, spaced 16 in. OC. Second layer- 1-5/8 ng for 3/4 in. thick panels, spaced 16 in. OC with screws offset 8 in. from first layer. Three-. thick panels, spaced 24 in. OC. Second layer- 1-5/8 in. long for 1/2 in., 5/8 in. thick panels, in., 5/8 in. thick panels or 2-5/8 in. long for 5/8 in. thick panels, spaced 12 in. OC. Screws : First layer- 1 in. long for 1/2 in., 5/8 in. thick panels, spaced 24 in. OC. Second layer- 1-5/8 . OC. Third layer- 2-1/4 in. long for 1/2 in. thick panels or 2-5/8 in. long for 5/8 in. thick panels, 2 in. thick panels or 3 in. long for 5/8 in. thick panels, spaced 12 in. OC. Screws offset min 6

ngle or double laver systems) — Resilient furring channels fabricated from min 25 MSG f 24 in. OC. Flange portion attached to each intersecting stud with 1/2 in. long Type S-12 steel

sides, not shown, for single or double layer systems) — As an alternate to Item 7, furring

v steel. 2-9/16 in. or 2-23/32 in. wide by 7/8 in. deep, spaced max. 24 in. OC perpendicular to tem b. Gypsum board attached to furring channels as described in Item 6. Not for use with Item

g channels (Item 7Aa) to studs (Item 2). Clips spaced max. 48 in. OC. RSIC-1 and RSIC-1 inimum self-drilling, S-12 steel screw through the center grommet. RSIC-V and RSIC-V (2.75) self-drilling, S-12 steel screw through the center hole. Furring channels are friction fitted into . wide furring channels. RSIC-1 (2.75) and RSIC-V (2.75) clips for use with 2-23/32 in. wide

- As an alternate to Item 7, for single or double layer systems, furring channels and Steel cribed below:

v steel, spaced 24 in. OC perpendicular to studs. Channels secured to studs as described in described in Item 5. Two layers of gypsum board attached to furring channels as described in

g channels (Item 7Ba) to one side of studs (Item 2) only. Clips spaced 48 in. OC., and rywall screws, one through the hole at each end of the clip. Furring channels are friction fitted

al on one or both sides, not shown, for single or double layer systems) — As an alternate to s as described below:

v steel. 2-3/8 in. wide by 7/8 in. deep, spaced max. 24 in. OC perpendicular to studs. Channels board attached to furring channels as described in Item 6. Not for use with Item 5A and 5E. g channels (Item 7Aa) to studs (Item 2). Clips spaced max. 48 in. OC. GENIECLIPS secured , S-12 steel screw through the center grommet. Furring channels are friction fitted into clips.

r both sides, not shown, for single or double layer systems) — Furring channels and Steel

steel. Spaced 24 in. OC perpendicular to studs. Channels secured to studs as described in and tied together with double strand of No. 18 AWG galvanized steel wire.. Gypsum board Not for use with Item 5A and 5E. g channels (Item 7Da) to studs. Clips spaced 48 in. OC., and secured to studs with 2 in.

y or premixed joint compound applied in two coats to joints and screw heads of outer layers. of compound over all joints of outer layer panels. Paper tape and joint compound may be uare edge.

- Aluminum, vinyl or steel siding, brick veneer or stucco, meeting the requirements of local veneer attached to studs with corrugated metal wall ties attached to each stud with steel

n) — A bead of acoustical sealant applied around the partition perimeter for sound control.

1 Item 5B) — Lead batten strips, min 1-1/2 in. wide, max 10 ft long with a max thickness of and attached from the exterior face of the stud with two 1 in. long Type S-12 pan head steel ttom of the strip. Lead batten strips to have a purity of 99.9% meeting the Federal rips required behind vertical joints of lead backed gypsum wallboard (Item 5B) and optional at

ith Item 5H) — Lead batten strips, 2 in. wide, max 10 ft long with a max thickness of 0.140 in. the stud with two min. 1 in. long min. Type S-8 pan head steel screws, one at the top of the min. 1 in. long min. Type S-8 pan head steel screw at the top of the strip. Lead batten strips to ation QQ-L-201f, Grades "B, C or D". Lead batten strips required behind vertical joints of lead a stud locations.

th Item 5B) — Used in lieu of or in addition to the lead batten strips (Item 11) or optional at thick lead discs compression fitted or adhered over steel screw heads or max 1/2 in. by 1-1/4 Im boards (Item 5B) underneath screw locations prior to the installation of the screws. Lead Federal specification QQ-L-201f, Grade "C".

iH) — Max 5/16 in. diam by max 0.140 in. thick lead discs compression fitted or adhered over 0.5% meeting the Federal Specification QQ-L-201f, Grades "B, C or D".

Item 5E) — Lead batten strips, 2 in. wide, max 10 ft long with a max thickness of 0.142 in. he stud with two min. 1 in. long min. Type S-8 pan head steel screws, one at the top of the min. 1 in. long min. Type S-8 pan head steel screw at the top of the strip. Lead batten strips to ation QQ-L-201f, Grade "C". Lead batten strips required behind vertical joints of lead backed ing stud locations.

E) — 2 in. wide, 5 in. long with a max thickness of 0.142 in. Tabs friction-fit around front face ace of the stud. Tabs required at each location where a screw (that secures the gypsum tabs to have a purity of 99.9% meeting the Federal specification QQ-L-201f, Grade "C". Lead ape if necessary.

Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada),

Design No. P510

October 08, 2019

Restrained Assembly Ratings - 1 and 1-1/2 Hr. (See Item 2A, 16)

Unrestrained Assembly Ratings — 1 and 1-1/2 Hr. (See Item 2A, 16)

This design was evaluated using a load design method other than the Limit States Design Method (e.g., Working Stress Design Method). For jurisdictions employing the Limit States Design Method, such as Canada, a load restriction factor shall be used — See Guide BXUV or BXUV7

* Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.







Beam — (Not shown) — W8X13 min size. As alternate to steel beam, Joist girders (Not shown)-20 in. min depth and 13 lb/lin ft min weight.

1. Roof Covering* — Consisting of hot mopped or cold application materials compatible with insulation(s) described herein which provide Class A, B or C coverings. See Roofing Materials and Systems Directory-Roof Covering Materials(TEVT).

1A. In lieu of Item 1, roof covering consisting of single-ply Roofing Membrane* — that is either ballasted, adhered or mechanically attached as permitted under the respective Classified company's Classification. See Fire Resistance Directory-Roofing Membranes (CHCI).

1B. Metal Roof Deck Panels* — (Not shown) — In addition to or in lieu of Items 1 or 1A, the roof covering may consist of a mechanically fastened metal roof deck panel assembly. See Fire Resistance Directory-Metal Roof Deck Panels* (CETW).

2. Roof Insulation — Mineral and Fiber Boards* — 24 by 48 in. to 48 by 96 in., to be applied in one or more layers. Boards to be installed perpendicular to gypsum board (Item 4) direction with end joints staggered 2 ft in adjacent rows. When applied in more than one laver. each laver of board to be offset in both directions from layer below a min of 12 in. in order to lap all joints. Min thickness 1 in. (No limit on max overall thickness).

When only one layer is used it must be bonded to gypsum board (Item 4) or vapor barrier with adhesive. When two or more layers are used the insulation may be fastened to steel roof deck (through gypsum board) with mechanical fasteners provided at least one layer of insulation is used over the mechanical fasteners. The individual layers may be bonded together with adhesive or hot asphalt.

GAF — Rigid mineral fiber boards — GAFTEMP Perlite. JOHNS MANVILLE — Rigid mineral fiber boards.

ROCKWOOL — MonoBoard[™], MonoBoard[™] Plus, "MonoBoard Plus S", TopRock®DD, TopRock® DD Plus or TopRock DD Plus S. SOPREMA INC — SopraRock®DD and SopraRock®DD Plus.

2A. Foamed Plastic* — As an alternate to Item 2, polyisocyanurate foamed plastic insulation boards, nom 48 by 48 or 96 in., to be applied in one or more layers. Min thickness is 1.2 in. for the 1 h ratings and 2.0 in. for the 1-1/2 h ratings. No limit on max overall thickness. Boards to be installed with end joints staggered a min of 6 in. in adjacent rows. When applied in more than one layer, each layer to be offset in both directions from layer below a min of 6 in. in order to lap all joints.

ATLAS ROOFING CORP — ACFoam II, ACFoam III, ACFoam-II SL, ACFoam IV.

CARLISLE SYNTEC SYSTEMS, A DIVISION OF CARLISLE CONSTRUCTION MATERIALS, LLC - Types HP, HP-H, HP-N, HP-W. DOW ROOFING SYSTEMS L L C — "Dow Termico Polyisocyanurate Insulation", "Dow Termico ISO 3000 Insulation", "Dow Termico ISO HP-

FIRESTONE BUILDING PRODUCTS CO L L C — "ISO 95+ GL", "ISO 95+ FK", "ISO 95+ CAN", "ISO 95+ GL NH", "ISOGARD HD Composite Board", "RESISTA", "ISOGARD GL", "ISOGARD CG".

GAF — EnergyGuard™, EnergyGuard RH, Tapered EnergyGuard RH, EnergyGuard™ RA, EnergyGuard™ NH. When EnergyGuard[™] or EnergyGuard[™] NH are used, all ratings are reduced by 1/2 hr.

HUNTER PANELS — H Shield, H-Shield-F, H-Shield-CG, H-Shield-C, H-Shield Premier, H-Shield HD Composite, H-Shield HD Composite CG, H-Shield RL, H-Shield CG RL, H Shield NH, H-Shield-F NH, H-Shield-CG NH, H-Shield-C NH, H-Shield Premier NH, H-Shield HD Composite CG

JOHNS MANVILLE — ENRGY 3 25, ENRGY 3, Tapered ENRGY 3, Tapered ENRGY 3 25 psi, ENRGY 3 AGF, Tapered ENRGY 3 AGF, ENRGY 3 25 psi AGF, Tapered ENRGY 3 25 psi AGF, ENRGY 3 CGF, Tapered ENRGY 3 CGF, ENRGY 3 25 psi CGF, Tapered ENRGY 3 25 psi CGF, ISO-3, Tapered ISO-3, ValuTherm, Tapered ValuTherm, ValuTherm 25 psi, Tapered ValuTherm 25 psi, ValuTherm AGF, Tapered ValuTherm AGF, ValuTherm 25 psi AGF, Tapered ValuTherm 25 psi AGF, ValuTherm CGF, Tapered ValuTherm CGF, ValuTherm 25 psi CGF, Tapered ValuTherm 25 psi CGF.

LOADMASTER SYSTEMS INC — Loadmaster Polyisocyanurate Insulation.

MARTIN FIREPROOFING CORP — "Perform-A-Deck I" RMAX OPERATING L L C — Multi-Max-3, Multi-Max FA-3, Ultra-Max, Ultra-Max Plus, Tapered Ultra-Max Plus, Tapered Thermaroof-3, Tapered Thermaroof FA-3, Tapered Ultra-Max.

SIKA SARNAFIL INC — Sarnatherm-R Insulation, Sarnatherm-R CG Insulation, Sarnatherm-R Tapered Insulation, Sarnatherm-R CG Tapered Insulation

SOPREMA INC — Sopra-ISO s, Sopra-ISO s Tapered, Sopra-ISO+ s, Sopra-ISO+ s Tapered, Sopra-ISO H+ s, Sopra-ISO H+ s Tapered. TREMCO INC — Trisotech G, Trisotech CGF

2B. Roof Insulation-Foamed Plastic* — Alternate to Items 2 through 2A. Any thickness polystyrene foamed plastic insulation boards bearing the UL Classification Marking, having a density of 2.5 pcf max, installed on top of min 1 in. thick Mineral and Fiber Boards (Item 2) and covered with either the Built-Up Roof Covering (Item 1) or single-ply roofing membrane (Item 1A). See Foamed Plastic* (BRYX) category in the Building Materials Directory or Foamed Plastic* (CCVW) category in the Fire Resistance Directory for list of Classified companies.

2C. Building Units — As an alternate to Items 2 through 2B, polyisocyanurate foamed plastic insulation boards, nom. 48 by 48 or 96 in., faced on the top surface with oriented strand board or plywood. Min. thickness of the polyisocyanurate core is 1.2 in. for the 1 hr. ratings and 2.0 for the 1-1/2 hr. ratings. No limit on max overall thickness. Boards to be installed with end joints staggered a min. of 6 in. in adjacent rows.

ATLAS ROOFING CORP — ACFoam NailBase Insulation, Vented-R, ACFoam CrossVent, ACFoam III Nail Base Insulation, ACFoam III

CrossVent HUNTER PANELS — H-Shield-NB, H-Shield-NB NH FIRESTONE BUILDING PRODUCTS CO L L C — Hailgard, "ISOGARD HG".

JOHNS MANVILLE — Nailboard.

SOPREMA INC — Sopra-ISO CV s. THE DOW CHEMICAL CO

2D. Building Units* — As an alternate to Items 2 through 2C, polyisocyanurate foamed plastic insulation boards, min thickness of 1.2 in. for 1 hr ratings and 2.0 in. for the 1-1/2 hr ratings, nom 48 by 48 or 96 in. faced on both sides with mineral and fiber boards. boards to be installed with end joints. Staggered a min of 6 in. in adjacent rows.

ATLAS ROOFING CORP SOPREMA INC

2E. Building Units* — As an alternate to Items 2 through 2D, polyisocyanurate foamed plastic insulation boards faced on the underside (or both sides) with mineral fiber board. Min thickness of the polyisocyanurate core is 1.2 in. for the 1 hr ratings and 2.0 in. for the 1-1/2 hr ratings. No limit on max overall thickness. Boards to be installed with end joints staggered a min of 6 in. in adjacent rows. Adhesive (Item 3) may be applied between the building units and the vapor retarder (or gypsum board (Item 4) if vapor retarder is not used).

FIRESTONE BUILDING PRODUCTS CO L L C --- "ISO 95+ Composite" JOHNS MANVILLE — Fesco-Foam.

2F. Building Units* — As an alternate to Items 2 through 2E, polyisocyanurate foamed plastic insulation boards faced on the underside with wood fiber board. Min thickness of the polyisocyanurate core is 1.2 in. for the 1 hr ratings and 2.0 in. for the 1-1/2 hr ratings. No limit on max overall thickness. Boards to be installed with end joints staggered a min of 6 in. in adjacent rows.

FIRESTONE BUILDING PRODUCTS CO L L C - ISO 95+ Wood Fiberboard Composite".

JOHNS MANVILLE — ENRGY-2 Plus.

2G. Foamed Plastic* — As an alternate to Items 2 through 2F, extruded polystyrene foamed plastic insulation boards to be placed on top of Roofing Membrane* (Item 1A). Min thickness is 2 in. Max thickness is 8 in. Foamed plastic boards to be covered with crushed stone on concrete pavers at a rate of 10 psf, min.

2H. Foamed Plastic* — As an alternate to Items 2 through 2G (for 1 hr. ratings only). Extruded polystyrene foamed plastic boards to be installed in one or more layers over gypsum board (Item 4). Joints of gypsum board to be covered with 4 in. wide foil tape. Min thickness is 1 in. when a min 1/2 in. thick layer of mineral and fiber board (Item 2) is installed on top of the foamed plastic. Min thickness is 3 in. when the mineral and fiber board (Item 2) is omitted. No limit on max thickness. All joints between layers offset min 6 in.

THE DOW CHEMICAL CO

21. Building Units* — Not Shown — As an alternate to Items 2 through 2H, composite polyisocyanurate foamed plastic insulation board with an adhered nailing surface, nom 48 by 48 or 96 in. may be used with the following limitations. These composite building units have ventilation slots internal to the panels. The thickness of the panel depends upon the thinnest portion of the polyisocyanurate insulation. The following dimensions apply to the polyisocyanurate insulation; min. thickness is 1.2 in. for the 1 hr ratings and 2.0 in. for the 1-1/2 in. ratings. There is no limit on the maximum insulation thickness.

GAF — Type INSUL-AIR.

JOHNS MANVILLE — Type ISO-VENT.

2J. Building Units* — As an alternate to Items 2 through 2I, polyisocyanurate foamed plastic insulation boards, nom 48 by 48 or 96 in., faced on the top surface with gypsum board. Min thickness of the polyisocyanurate core is 1.2 in. for 1 hr ratings and 2.0 in. for the 1-1/2 hr ratings. No limit on overall thickness. Boards to be installed with end joints staggered a min of 6 in. in adjacent rows.

JOHNS MANVILLE — ENRGY 2 Gypsum Composite.

2Ka. Foamed Plastic* — Optional - (Not Shown) - Maximum 1 in. thick polyisocyanurate foamed plastic insulation boards, nom 48 by 48 or 96 in. Boards may be applied as the top layer in addition to the specified minimum thickness of any roofing system described herein, as long as the roofing system states that there is no limit on maximum thickness. Joints offset in both directions from layer below.

FIRESTONE BUILDING PRODUCTS CO L L C — "ISOGARD HD" or "ISOGARD HD Composite Board"

2Kb. Foamed Plastic* — Optional — (Not Shown) — Maximum 5/8 inch thick polyisocyanurate foamed plastic insulation boards, nom 48 by 48 or 96 in. Boards may be applied as the top layer in addition to the specified minimum thickness of any roofing system described herein, as long as the roofing system states that there is no limit on maximum thickness. Joints offset in both directions from layer below.

RMAX OPERATING L L C — "Ultra-Max HD"

SIKA SARNAFIL INC — "Sarnatherm Roof Board-R"

2Kc. Foamed Plastic* - Optional - (Not Shown) - Maximum 1/2 inch thick polyisocyanurate foamed plastic insulation boards, nom 48 by 48 or 96 in. Boards may be applied as the top layer in addition to the specified minimum thickness of any roofing system described herein, as long as the roofing system states that there is no limit on maximum thickness. Joints offset in both directions from layer below.

HUNTER PANELS — H-Shield HD, H-Shield HD90, H-Shield HD RL, H-Shield HD NH, H-Shield HD90 NH

2Kd. Building Units* — As an alternate to Item 2, polyisocyanurate foamed plastic insulation boards, nom. 48 by 48 or 96 in., faced on the top surface with wood fiber board. Min. thickness of the polyisocyanurate core is 1.2 in. for the 1 hr. ratings and 2.0 for the 1-1/2 hr. ratings. No limit on max overall thickness. Boards to be installed with end joints staggered a min. of 6 in. in adjacent rows.

HUNTER PANELS — H-Shield-WF, H-Shield-WF NH

2Ke. Building Units* — As an alternate to Item 2, polyisocyanurate foamed plastic insulation boards, nom. 48 by 48 or 96 in., faced on the top surface with perlite composite board. Min. thickness of the polyisocyanurate core is 1.2 in. for the 1 hr. ratings and 2.0 for the 1-1/2 hr. ratings. No limit on max overall thickness. Boards to be installed with end joints staggered a min. of 6 in. in adjacent rows.

HUNTER PANELS - H-Shield-P, H-Shield-RP, H-Shield-P NH, H-Shield-RP NH

2Kf. Building Units* — As an alternate to Item 2, polyisocyanurate foamed plastic insulation boards, nom. 48 by 48 or 96 in., faced on the top surface with glass mat faced gypsum panel. . Min. thickness of the polyisocyanurate core is 1.2 in. for the 1 hr. ratings and 2.0 for the 1-1/2 hr. ratings. No limit on max overall thickness. Boards to be installed with end joints staggered a min. of 6 in. in adjacent rows

HUNTER PANELS — H-Shield-DD, H-Shield-DD NH

2L. Roof Insulation — Foamed Plastic* — As an alternate to Items 2 - — Polyurethane foamed plastic roof insulation. Formed by the simultaneous spraying of two liquid components applied over gypsum wallboard (item 4) in accordance with the manufacturer's instructions. Min thickness is 1.2 in. for the 1 h ratings and 2.0 in. for the 1-1/2 h ratings. No limit on max overall thickness.

BASF CORP — Types FE348-2.5, FE348-2.8, FE348-3.0, ELASTOSPRAY 81255, ELASTOSPRAY 81285, ELASTOSPRAY 81305, SKYTITE 2.5, SKYTITE 2.8 or SKYTITE 3.0

BASF CORP — Elastospray 5100-2.0, Elastospray 5100-2.5, Elastospray 81302, Elastospray 81272, Elastospray Alpha System, Elastospray 81252

3. Sheathing Material* — (Optional) — Vinyl-film vapor barrier, applied with adhesive to gypsum board (Item 4). Adjacent sheets overlapped 2 in.

3A. Sheathing Material* — (Optional) — In lieu of Item 3, a self-adhered rubberized asphalt roofing underlayment membrane which may be placed on top of the gypsum board (Item 4) or on the roof insulation (Item 2 or any non-polystyrene foamed plastic insulation covered as an alternate to Item 2).

GCP APPLIED TECHNOLOGIES INC — Grace Ice and Water Shield, Grace Ice and Water Shield-HT®, Grace Select, Grace Ultra, and Grace Basik

4. Gypsum Board — (Classified or unclassified) — Supplied in sheets nom 2 by 4 ft to 4 by 12 ft, by nom 5/8 in. thick. Min weight 2.0 psf. Applied perpendicular to steel roof deck direction with adhesive. End joints to occur over crests of steel roof deck with end joints staggered 2 ft in adiacent rows.

See Gypsum Board (CKNX) category for names of manufacturers.

5. Steel Roof Deck — Min 1 in. deep, 25 in. wide, fluted galv steel deck. Min 0.023 in. thick (24 gauge). Flutes approx 4 in. OC, crests approx 2-3/4 in. wide. Welded to supports with welding washers 12 in. OC. Side laps of adjacent units welded or secured together with No. 12 by 1/2 in. self-drilling, self-tapping steel screws midway between steel joists; or, Classified Steel Floor and Form Units* 1-1/2 in. deep, 24, 30 or 36 in. wide, galv steel units. Min gauge is 22 MSG. Welded to supports with welding washers 12 in. OC. Side laps of adjacent units welded or secured together with No. 12 by 1/2 in. self-drilling, self-tapping steel screws midway between steel joists.

CANAM STEEL CORP — Type P-3606 or P-3615

GOODER HENRICHSEN CO. — Type B. MARLYN STEEL DECKS INC - Types B, EF, F, HF.

NEW MILLENNIUM BUILDING SYSTEMS L L C — Types B, BI, F, 1.0RD, N. Units may be phos/painted or galvanized.

VALLEY JOIST+DECK — Types F, B, BI.

VULCRAFT, DIV OF NUCOR CORP — Types 1.0E, 1.5A, 1.5B, 1.5BI, 1.5PLB, 1.5F, 3.0N, 3.0NI, 3.0PLN, 3NL-32, 3NI-32, 3PLN-32; Types BW, B High Strength, BW High Strength, N, TF-75, TF-150, TV-75, TF S3, TV S3.

6. Adhesive* — Applied between crests of steel roof deck and gypsum board (Item 4) in 1/2 in. wide ribbons 8 in. OC at 0.4 gal per 100 sg ft. Applied in 1/2 in. wide ribbons 6 in. OC, at 0.4 gal per 100 sq ft, between gypsum board and vapor barrier and between vapor barrier and mineral and fiber boards, or directly between gypsum boards and roof insulation when vapor barrier is omitted. May also be applied at the same rate between layers of roof insulation.

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	HCPS - UPWARD ELEMENTARY SCHOOI ADDITION & RENOVATIONS TO EXISTING CAFETERIA 45 EDUCATION DRIVE, FLAT ROCK, NORTH CAROLINA 28731	UL LISTINGS AND WALL TYPES	VTS - JANUARY 06, 2020			
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