# COLLETON COUNTY **RECREATION CENTER ADDITION AND RENOVATION**

## **OWNER**:

G001

G002 G003 G004 G00

G00/ C00.

C0.0

C2.0

C4.0

C5.0

C5.1

C6.0 C6.1

S101 S201

S301 S302 S401

S402 S501

ARCHITEC

A001

A002 A100 A200A A200B A201 A300

A400

A401 A402 A403 A404 A600 A700

A701

A702 A800 A801 A802 A810

A811

A820

A900

1200 1900

INTERIOR

STRUCTUR S001 S002

COLLETON COUNTY 113 MABLE T. WILLIS BLVD. WALTERBORO, SC, 29488 TEL: (843) 539-1968

# **ARCHITECT:**

CLARK PATTERSON LEE 6302 FAIRVIEW RD., SUITE 102 CHARLOTTE, NC, 28210 Tel: (800) 274-9000 Fax: (704) 331-0402 www.clarkpatterson.com

# LIST OF DRAWINGS

TYPICAL CEILING AND MILLWORK DETAILS

FIRST FLOOR FINISH PLAN

FINISH SPECIFICATIONS

DOOR SCHEDULE, DOOR FRAMES, AND WINDOW TYPES

L			
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	UL ASSEMBLIES	H200	GROUND FLOOR DUCTWORK PLAN
	UL ASSEMBLIES	H201	HVAC ROOF NEW WORK PLAN
	UL ASSEMBLIES	H500	HVAC CONTROL DIAGRAMS AND SEQUENCES OF O
	PARTITION DETAILS	H800	HVAC DETAILS
		H801	HVAC DETAILS
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	SITE PLAN	FP200	FIRE PROTECTION - GROUND FLOOR WORK PLAN
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RAL		P300	PLUMBING - GROUND FLOOR NEW WORK PLAN - DC
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	ROOF FRAMING PLAN	E000	ELECTRICAL SYMBOLS LEGEND, NOTES & ONE-LINE D
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	SECTIONS AND DETAILS	E100	ELECTRICAL GROUND FLOOR DEMOLITION PLAN
	SECTIONS AND DETAILS	E200	ELECTRICAL GROUND FLOOR POWER AND SYSTEMS
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	MASONRY SECTIONS AND DETAILS	E300	ELECTRICAL GROUND FLOOR LIGHTING PLAN
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	ROOF PLAN	SP-3	VAK PAK WATER CONTAINMENT TANK
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	ROOF DETAILS	SP-15	SPLASH PAD ELECTRICAL & STRUCTURAL NOTES
	ROOF DETAILS		
	PLAN DETAILS		
	PLAN DETAILS		

2012			Stear (15) Star Grube (17)	Barrace Map d
LIST OF AB	BREVIATIONS		MATERIAL SYMBOLS	
AFF ABOVE FINISHD FLOOR CJT AP ACCESS PANEL CON ACOUS ACOUSTICAL CON ADJ ADJACENT CJ ACT ACOUSTICAL CEILING TILE AWP ACOUSTICAL CEILING TILE AWP ACOUSTICAL WALL PANEL DP A/C AIR CONDITIONING DEMO ALT ALTERNATE DEPT ALUM ALUMINUM DET,D AB ANCHOR BOLT DIA ANOD ANODIZED DIM APPROX APPROXIMATE DISP ARCH ARCHITECT, ARCHITECTURAL DSP AD AREA DRAIN DO @ AT DR AUTO AUTOMATIC DBL DN BM BEAM DS	CONSTRUCTION JOINT FF FINISH FLOOR T CONTINUOUS FEC FIRE EXTINGUISHER CABINET TR CONTRACTOR FH FIRE HOSE CONTROL JOINT FL, FLR FLOOR FD FLOOR DRAIN DAMP PROOFING FTG FOOTING O DEMOLISH FND FOUNDATION DEPARTMENT FS FULL SIZE DIL DETAIL FUT FUTURE DIAMETER DIMENSION GALV GALVANIZED DISPENSER G GAS DISPOSAL GA GAUGE DITO, REPEAT, SAME GEN GENERAL DOOR GC GENERAL CONTRACTOR DOUBLE GL GLASS, GLAZING DOWN GB GRAB BAR DOWNSPOUT GR GRADE, GRADING	OCON CENTERSECTSECTIONOPNGOPENINGSIMSIMILARODOUTSIDE DIAMETERSTCSOUDI TRANSMISSION COEFFICIENTOHOVERHEADSPECSPECIFICATIONOHOVERHEADSQSQUAREPTDPAINTEDSSSTAINLESS STEELPRPAIRSTDSTANDARDPIRPARE TOWEL RECEPTORSTLSTEELPKGPARKINGSTORSTORAGEPART BDPARTICLE BOARDSTRUCTSTRUCTURE, STRUCTURALPARTPARTITIONSGFTSTRUCTURAL GLAZED FACING TILEPLPROPERTY LINEST.STRUCTURAL STEELPLAMPLASTIC LAMINATESUSPSUSPENDEDPLPLATESATSUSPENDED ACOUSTICAL TILEPLSGPLUMBINGTELTELEPHONEPLSGPLYWOODTELTELEPHONEPRE FABPREFABRICATEDTEMPERATUREPRTPRESSURE TREATEDTHKPRTPRESSURE TREATEDTHCPRTPRESSURE TREATEDTHCPRTPRESSURE TREATEDTHCPRTPRESSURE TREATEDPRTPRESSURE TREATEDPRTPRESSURE TREATEDPRPRESSURE TREATEDPRPRESSURE TREATEDPRPRESSURE TREATEDPRPRESSURE TREATEDPRPRESSURE TREATEDPRPRESSURE TREATEDPRPRESSURE TREATEDPRPRESSURE TREATEDPRPRESSURE TREATED <th>EARTH       BRICK       RIGID INSULATION       I mean in the rating         GYPSUM BOARD       STEEL       Batt OR LOOSE INSULATION       I mean in the rating         GRAVEL TYPE 1 (ENGINEERED FILL)       GROUT       CAVITY DRAINAGE MAT       I mean in the rating         PRECAST CONCRETE       ROUGH WOOD BLOCKING       ALUMINUM       EXISTING BUILDING MATERIALS         CRUSHED STONE       ROUGH WOOD BLOCKING, NON-CONTINUOUS       STANDING SEAM ROOF       I         METAL STUD PARTITION       PLYWOOD (LARGE SCALE)       TERRAZZO       I       I</th> <th></th>	EARTH       BRICK       RIGID INSULATION       I mean in the rating         GYPSUM BOARD       STEEL       Batt OR LOOSE INSULATION       I mean in the rating         GRAVEL TYPE 1 (ENGINEERED FILL)       GROUT       CAVITY DRAINAGE MAT       I mean in the rating         PRECAST CONCRETE       ROUGH WOOD BLOCKING       ALUMINUM       EXISTING BUILDING MATERIALS         CRUSHED STONE       ROUGH WOOD BLOCKING, NON-CONTINUOUS       STANDING SEAM ROOF       I         METAL STUD PARTITION       PLYWOOD (LARGE SCALE)       TERRAZZO       I       I	
1     BP     BEARING PLATE     DT       BM     BENCH MARK     DWR       BITUM     BITUMINOUS     DWG       BLKG     BLOCKING     DF       BD     BOARD     EA       BD     BOARD     EF       BRK     BRICK     EW       BLDG     BUILDING     E       BN     BULLNOSE     ELEC       CAR     CARINET     EL	DRINKING FOUNTAINGYP BDGYPSUM BDEACHHDWRHARDWAREEACH FACEHDWDHARDWOODEACH WAYHVACHEATING, VENTILATING & AIR CONDITIONINGELECTRICALHT, HGTHEIGHTELEVATIONHEXHEXANGONAL	PT       PAINT       TPD       TOILET PAPER DISPENSER         PVC       POLYVINYL CHLORIDE       TOS       TOP OF SLAB/STEEL         PC CONC       PRECAST CONCRETE       TOW       TOP OF WALL         PVMT       PAVEMENT       TYP       TYPICAL         QTY       QUANTITY       UNFIN       UNFINISHED         QT       QUARRY TILE       UNO       UNLESS OTHERWISE NOTED         QTB       QUARRY TILE BASE       U       URINAL         VEN       VENEER       VEN       VENEER         RAD       RADIUS       VIF       VERIEY IN FIELD         RECP       RECEPTACLE       VEST       VESTIBULE         REF       REFERENCE       VB       VINYL BASE	A       COLUMN CENTERLINE A       II       PARTITION TYPE 11 (1hr RATED) SEE PARTITION LEGEND       PROPERTY LINE       300 30"       CASEWORK TAG         3       SIM       DETAIL #3 on SHEET A201       Image: Accessory TAG       Image: Accessory TAG	
OCABCABINETELCICAST IRONEMERCPTCARPET(ED)ENCLCBCATCH BASINENTRCLGCEILINGHEIGHTCLGCEILING HEIGHTEQUILCLCENTER LINEESTCERCERAMICEXHSICTCERAMIC TILEEXISTCBCHALK BOARDEXPCIRCCIRCUMFERENCEEJCOCLEAN OUTCLRCLRCLEARFCONCCONCRETEFTCMUCONCRETE MASONRY UNITFIGCONSTCONSTRUCTIONFIN	ENCLOSURE HORZ HORIZONTAL ENTRANCE HB HOSE BIBB EQUAL HW HOT WATER P EQUIPMENT HR HOUR ESTIMATE(D) T EXHAUST IN INCH	REF     REFRENCE     VB     VINYL BASE       REFR     REFRIGERATOR     VCT     VINYL COMPOSITION TILE       REFR     REFRIGERATOR     VF     VINYL FABRIC       REINF     REINFORCED(ING)     VWC     VINYL WALL COVERING       REQ'D     REQUIRED     VT     VINYL TILE       REQ'D     REQUIRED     VT     VINYL TILE       RVT     RSLIENT VINYL TILE     VOL     VOLUME       REV     REV'REVISED     WT     WEIGHT       R     RIGHT HAND     WC     WATER CLOSET       R     RISER     WT     WEIGHT       RD     ROOF DRAIN     WWF     WELDED WIRE FABRIC       RM     ROOM     WWM     WELDED WIRE FABRIC       RM     ROOM     WIND     WINDOW       W/     WITH     WITH       SAN     SANITARY     W/O     WITHOUT       SCHED     SCHEDULE     WD     WOOD       SCHED     SCHEDULE     YD     YARD	Image: Simple building section (NO.) or wall section (NO.) or sheet aton       + 100.75       EXISTING SPOT ELEVATION       Image: Section (NO.) or REMAIN       Image: Section (IETTER) on Sheet aton       + 100.75       EXISTING SPOT ELEVATION       Image: Section (IETTER) on Sheet aton       Image:	<b>SE</b> 1

# MEP ENGINEERS:

CLARK PATTERSON LEE 912 SOUTH MAIN ST., SUITE ONE GREENVILLE, SC, 29601 Tel: (800) 274-9000 Fax: (864) 220-9933 www.clarkpatterson.com

# **STRUCTURAL ENGINEERS:**

MICHAEL M. SIMPSON & ASSOCIATES, WC. 30 PATEWOOD DR., SUITE 100 GREENVILLE, SC 29615 TEL: (864) 331-1201 FAX: (864) 331-1070

RAMS

OPERATION

K PLAN SANITARY

DOMESTIC WATER

DIAGRAMS

**NS PLAN** 

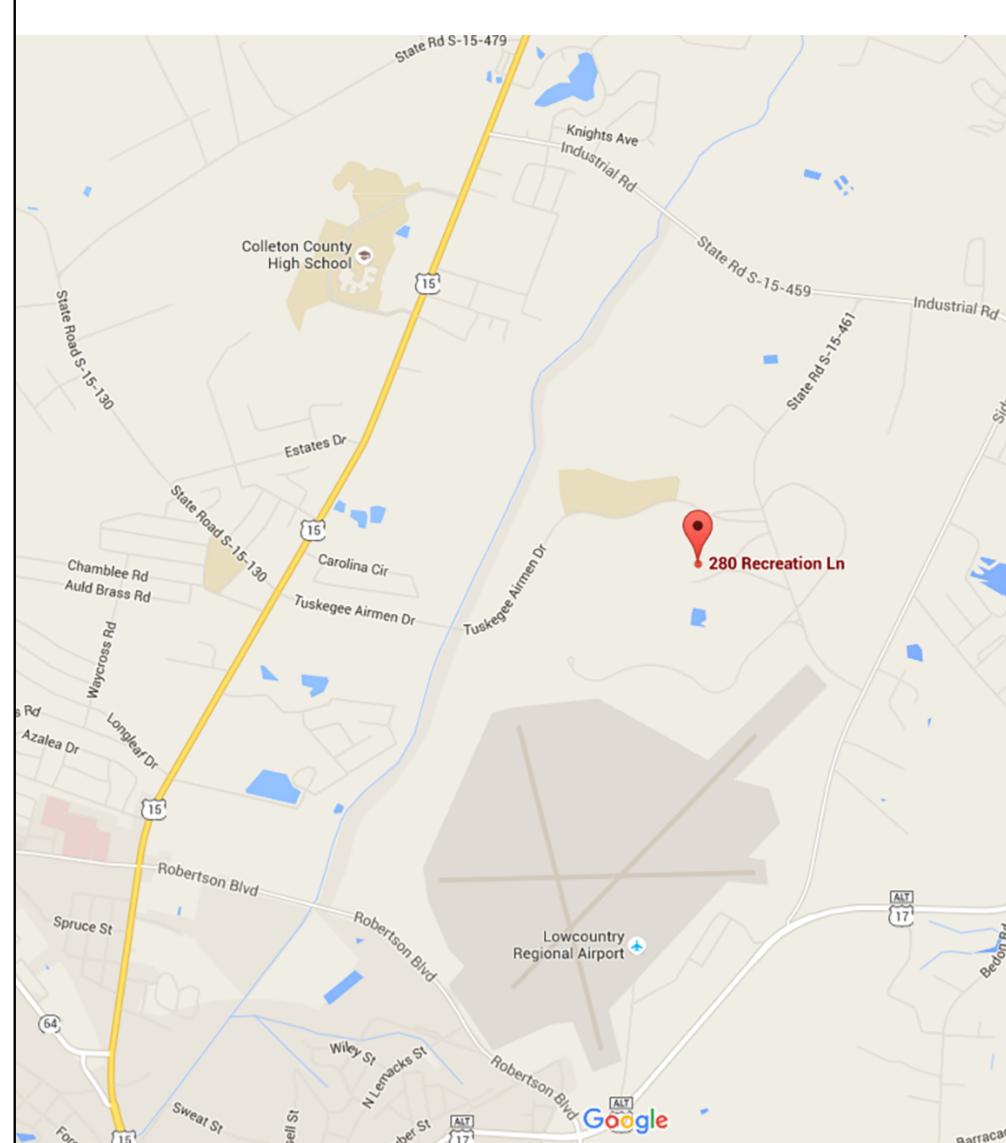
AM SECTIONS.

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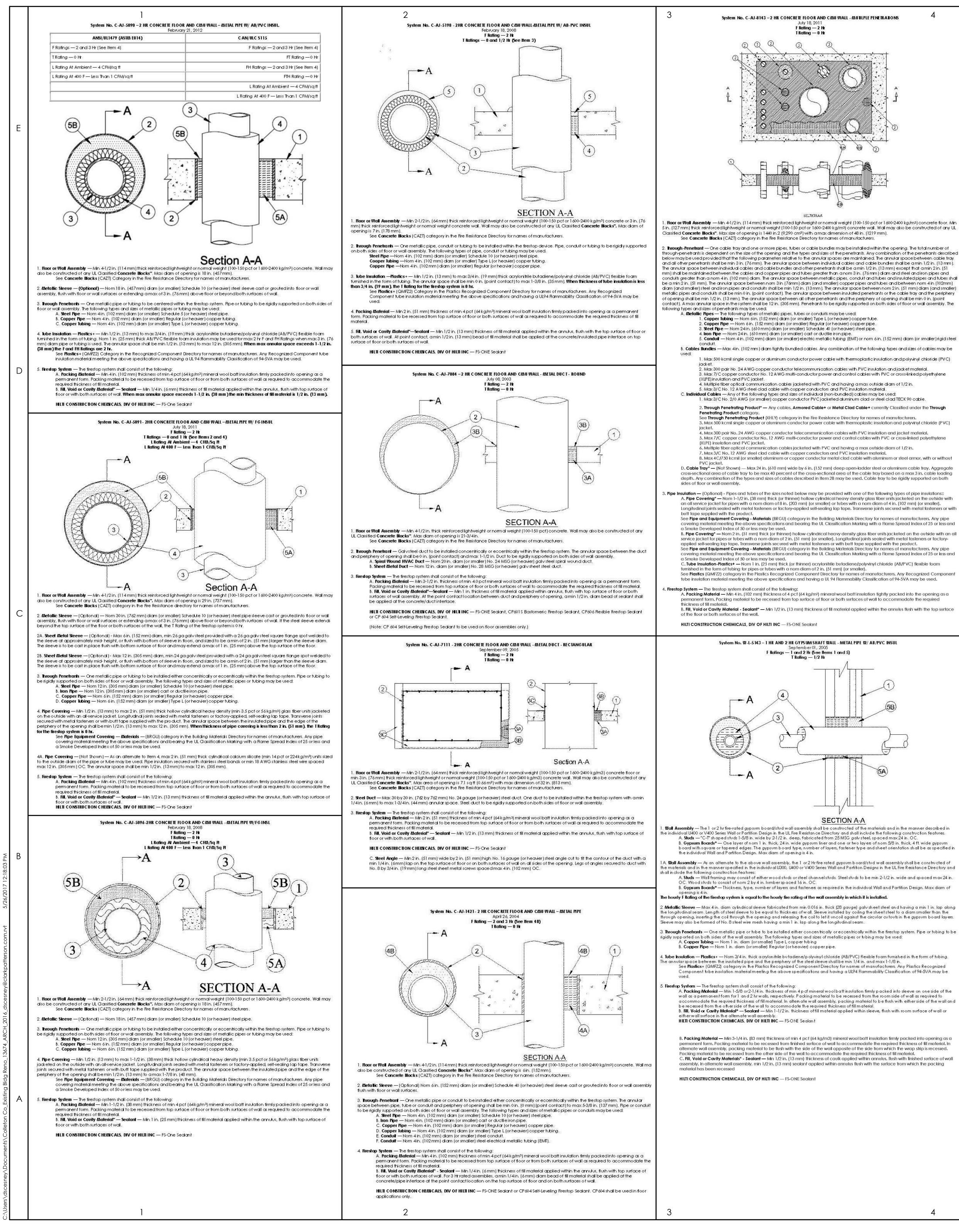
## **CIVIL ENGINEERS:**

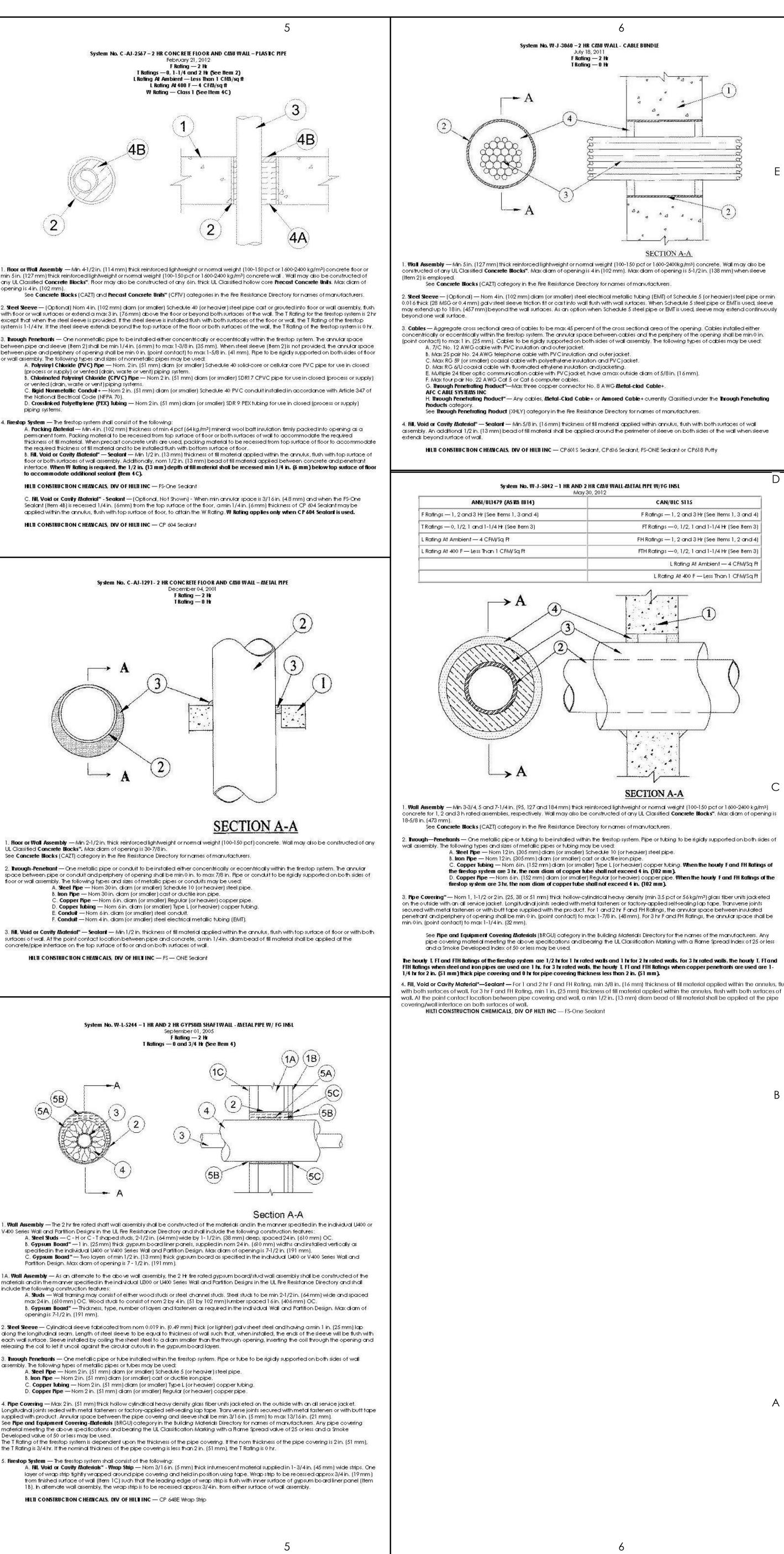
INFRASTRUCTURE CONSULTING AND ENGINEERING 1691 TURNBULL AVENUE NORTH CHARLESTON, SC 29405 TEL: (843) 266-3581 FAX: (843) 266-3583 WWW.ICE-ENG.COM

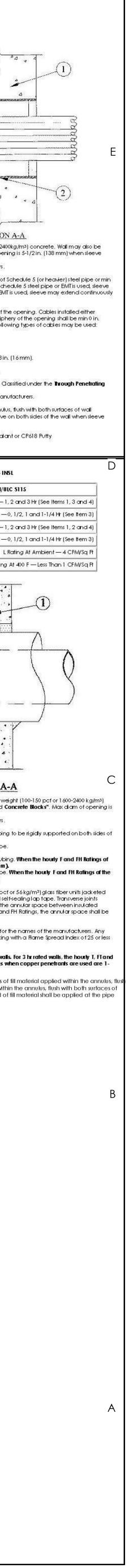
# LOCATION MAP

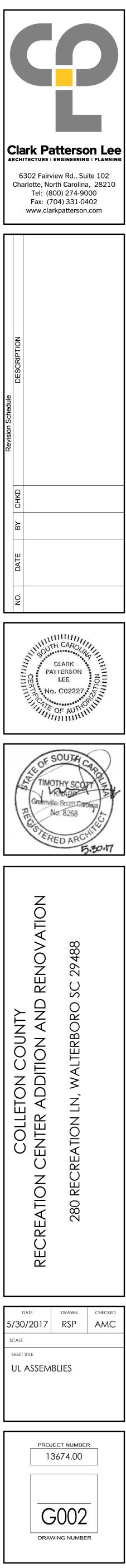


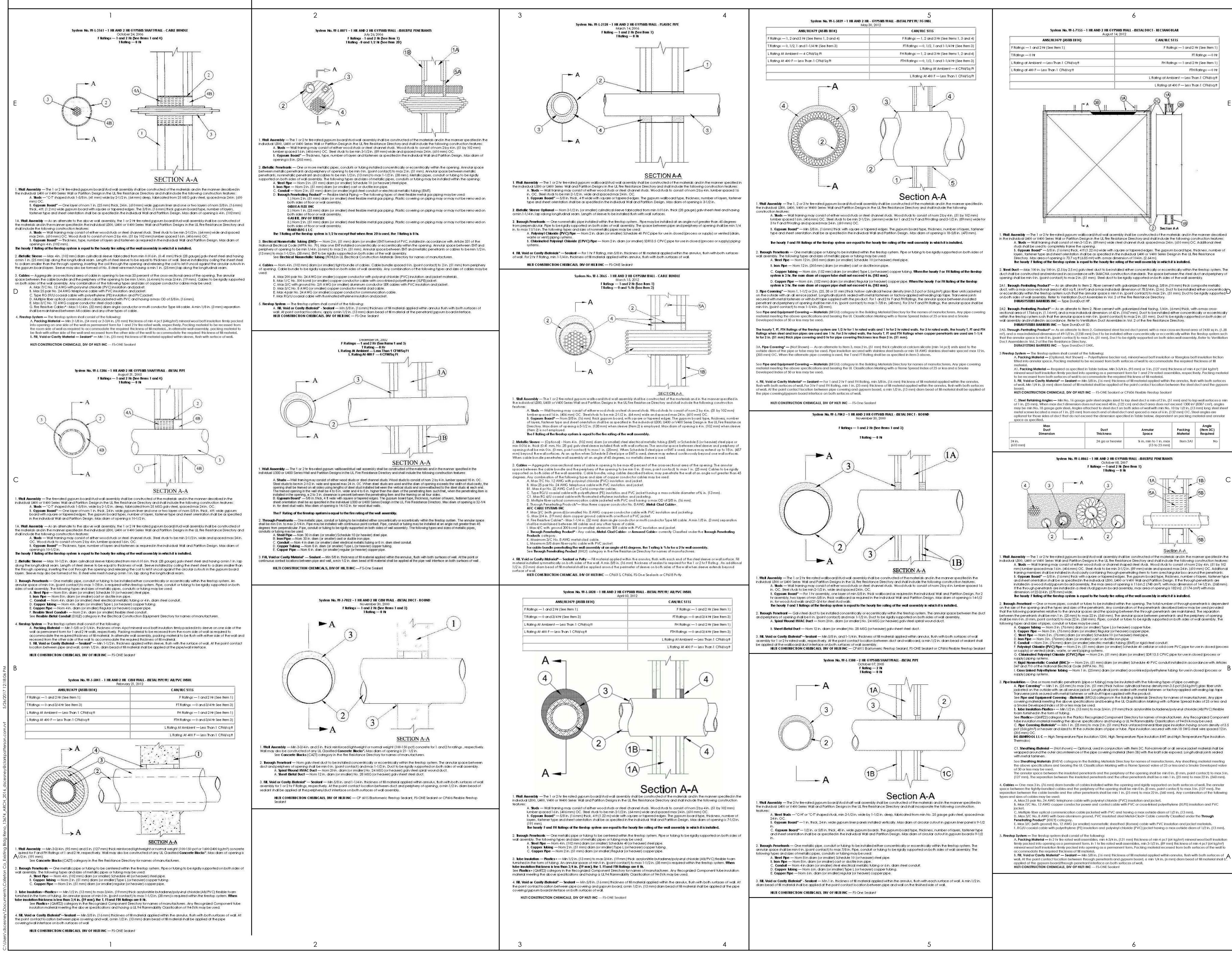












CAN/ULC S115 L Rating at Ambient - Less Than 1 CFM/sq.ft L Rating at 400 F — Less Than 1 CFM/sa ft Section A-A

B. Gypsum Board\* - 5/8 in. (16 mm) thick, 4 ft (1.22 m) wide with square or tapered edges. The gypsum board type, thickness, number of layers, fastener type and sheet orientation shall be as specified in the individual U400 or V400 Series Design in the UL Fire Resistance The hourly F Rating of the firestop system is equal to the hourly fire rating of the wall assembly in which it is installed. A1. Through-Pentrating Product\*— As an alterate to Item 2. Fiber cement with advanized steel facing, 3/8 in (10 mm) thick composite metallic A3. Through-Pentrating Product\* — As an alterate to Item 2. Galvanized steel faced duct panel, with a max cross-sectional area of 2450 sq in. (1.58

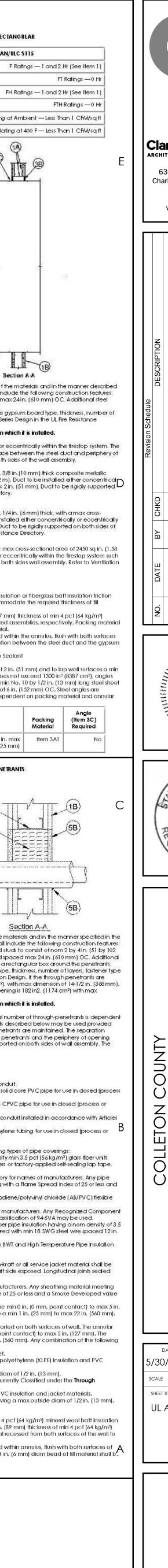
A. Packing Material — (Optional, Not Shown) — Polvethvlene backer rod, mineral wool batt insulation or fiberalass batt insulation friction fitted into annular space. Packing material to be recessed from both surfaces of wall to accommodate the required thickness of fill A1. Packing Material — Required as specified in Table below. Nin 3-3/4 in. (95 mm) or 5 in. (127 mm) thickness of min 4 pcf (64 kg/m<sup>3</sup>) mineral wool batt insulation firmly packed into opening as a permanent form for 1 and 2 hr rated assemblies, respectively. Packing materia

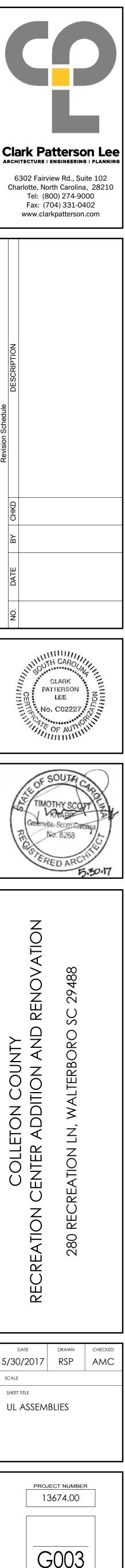
of wall. Nin 1/4 in. (6 mm) diam bead of fill material shall be applied at the point contact location between the steel duct and the gypsum C. Steel Retaining Angles — Min No. 16 gauge galv steel angles sized to lap steel duct a min of 2 in. (51 mm) and to lap wall surfaces a min of 1 in. (25 mm). When max duct dimension does not exceed 48 in. (122 cm) and duct area does not exceed 1300 in<sup>2</sup> (8387 cm<sup>2</sup>), angles may be min No. 18 gauge galv steel. Angles attached to steel duct on both sides of wall with min No. 10 by 1/2 in. (13 mm) long steel sheet metal screws located a max of 1 in. (25 mm) from each end of steel duct and spaced a max of 6 in. (152 mm) OC. Steel angles are optional for those sides of duct that do not exceed the dimension specified in Table below, dependent on packing material and annular Packing Material Item 3A1

F. Polyvinyl Chloride (PVC) Pipe — Nom 2 in. (51 mm) diam (or smaller) Schedule 40 cellular or solid core PVC pipe for use in dosed (process G. Chlorinated Polyvinyl Chloride (CPVC) Pipe - Nom 2 in. (51 mm) diam (or smaller) SDR 13.5 CPVC pipe for use in closed (process or H. Rigid Nonmetallic Conduit (RNC)+ - Nom 2 in. (51 mm) diam (or smaller) Schedule 40 PVC conduit installed in accordance with Articles I. Cross Linked Polyethylene Tubing — Nom 1 in. (25 mm) diam (or smaller) aross-linked polyethylene tubing for use in closed (process or . Pipe Insulation — One or more metallic penetrants (pipe or tubing) may be insulated with the following types of pipe coverings: A. Pipe Covering\*— Win 1 in. (25 mm) to max 2 in. (51 mm) thick hollow cylindrical heavy density min 3.5 pcf (56 kg/m<sup>3</sup>) glass fiber units iacketed on the outside with an all service lacket. Longitudinal joints sealed with metal fasteners or factory-applied self-sealing lap tape See Pipe and Equipment Covering - Materials (BRGU) category in the Building Materials Directory for names of manufacturers. Any pipe covering material meeting the above specifications and bearing the UL Classification Marking with a Rame Spread Index of 25 or less and B. Tube Insulation-Plastics + — Min 1/2 in. (13 mm) to max 3/4 in. (19 mm) thick acrylonitrile butadiene/polyvinyl chloride (AB/PVC) flexible See Plastics+ (QMFZ2) category in the Plastics Recognized Component Directory for names of manufacturers. Any Recognized Component tube insulation material meeting the above specifications and having a UL 94 Rammability Classification of 94-5VA may be used. C. Pipe Covering Materials\* — Mn 1 in. (25 mm) to max 2 in. (51 mm) thick unfaced mineral fiber pipe insulation having a nom density of 3.5 pcf (56kg/m³) or heavier and sized to fit the outside diam of pipe or tube. Pipe insulation secured with min 18 SWG steel wire spaced 12 in. IIG MINWOOLLLC - High Temperature Pipe Insulation 1200, High Temperature Pipe Insulation BWT and High Temperature Pipe Insulation C1. Sheathing Material — (Not shown) — Optional, used in conjunction with Item 3C. Foil-scrim-kraft or all service jacket material shall be wrapped around the outer circumference of the pipe covering material (Item 3B) with the kraft side exposed. Longitudinal joints sealed

See Sheathing Materials (BVDV) category in the Building Materials Directory for names of manufacturers. Any sheathing material meeting the above specifications and bearing the UL Classification Marking with a Flame Spread value of 25 or less and a Smoke Developed value The annular space between the insulated penetrants and the periphery of the opening shall be min 0 in. (0 mm, point contact) to max 5 in (127 mm). The separation between the insulated penetrants and the other penetrants shall be a min 1 in. (25 mm) to max 22 in. (560 mm). 4. Cables — One max 3 in. (76 mm) diam bundle of cables installed within the opening and rigidly supported on both surfaces of wall. The annular space between the tightly-bundled cables and the periphery of the opening shall be min 0 in. (0 mm, point contact) to max 5 in. (127 mm). The separation between the cable bundle and the other penetrants shall be min 1 in. (25 mm) to max 22 in. (560 mm). Any combination of the following C. Multiple fiber optical communication cable jacketed with PVC and having a max outside diam of 1/2 in. (13 mm). D. Max 3/C No. 8 AWG with bare aluminum ground, PVC insulated steel Metal-Clad+ Cable currently Classified under the Through E, Max 3/C (with ground) No. 12 AWG (or smaller) nonmetallic sheathed (Romex) cable with PVC insulation and jacket materials

A. Packing Material - In 2 hr fire rated wall assemblies, min 4-3/4 in. (121 mm) thickness of min 4 pcf (64 kg/m<sup>3</sup>) mineral wool batt insulation firmly packed into opening as a permanent form. In 1 hr fire rated wall assemblies, min 3-1/2 in. (89 mm) thickness of min 4 pcf (64 kg/m<sup>3</sup>) mineral wool batt insulation firmly packed into opening as a permanent form. Packing material recessed from both surfaces of the wall to B. Fill, Void or Cavity Material\* — Sealant — Min 5/8 in. (16 mm) thickness of fill material applied within annulus, flush with both surfaces of 💋 wall. At the point contact location between through penetrants and gypsum board, a min 1/4 in. (6 mm) diam bead of fill material shall b





DRAWING NUMBER

	Fire-resi ] ance Ratings - ANSI/UL 263
	Design No. U419 August 15, 2013
	Nonbearing Wall Ratings – 1, 2, 3 or 4 Hr (See Items 4 & 5)
E	$\begin{array}{c} 4 \\ 4 \\ 4 \\ 8 \\ 8 \\ 5 \end{array}$
	5 7Aa (7Ab
	$\begin{array}{c c} \hline \\ \hline $
D	5 1. Floor and Ceiling Runners — (Not shown) — For use with Item 2 - Channel shaped, fabricated from min 25 MSG corrosion-protected steel, min depth to accommodate stud size, with min 1-1/4 in. long legs, attached to floor and ceiling with fasteners 24 in. OC max. 1A. Framing Members* - Floor and Ceiling Runner — Not shown - In lieu of Item 1 — For use with Item 2B, proprietary channel shaped runners, 3-5/8 in. deep attached to floor and ceiling with fasteners 24 in. OC max. CALIFORNIA EXPANDED METAL PRODUCTS CD — Viper25™ Track
	CRACO MFG INC — SmartTrack™
	MARINO/WARE, DIV OF WARE INDUSTRIES INC — Viper25™ Track PHILLIPS MFG CO L L C — Viper25™ Track
	<b>PHILLIPS MFG COLLU</b> — Viper25 <sup>™</sup> Track 1B. Framing Members* - Floor and Ceiling Runner — Not shown - In lieu of Item 1 — For use with Item 2C, proprietary channel shaped runners, 1-1/4 in. wide by 3-5/8 in. deep fabricated from min 0.020 in. thick galv steel, attached to floor and ceiling with fasteners spaced 24 in. OC max. CALIFORNIA EXPANDED METAL PRODUCTS CO — Viper20 <sup>™</sup> Track
	MARINO/WARE, DIV OF WARE INDUSTRIES INC — Viper20™ Track PHILLIPS MFG CO L L C — Viper20™ Track
	1C. <b>Framing Members*— Floor and Ceiling Runners</b> — (Not shown) — In lieu of Item 1 - Channel shaped, attached to floor and ceiling with fasteners 24 in. OC. max. ALLSTEEL & GYPSUM PRODUCTS INC — Type SUPREME Framing System
С	CONSOLIDATED FABRICATORS CORP, BUILDING PRODUCTS DIV — Type SUPREME Framing System QUAIL RUN BUILDING MATERIALS INC — Type SUPREME Framing System
	SCAFCO STEEL STUD MANUFACTURING CO — Type SUPREME Framing System
	STEEL CONSTRUCTION SYSTEMS INC — Type SUPREME Framing System
	UNITED METAL PRODUCTS INC — Type SUPREME Framing System
	<ul> <li>1D. Floor and Ceiling Runners — (Not shown)—For use with Item 2A- Channel shaped, fabricated from min 20 MSG corrosion-protected or galv steel, min depth to accommodate stud size, with min 1 in. long legs, attached to floor and ceiling with fasteners spaced max 24 in. OC.</li> <li>1E. Framing Members*— Floor and Ceiling Runners — (Not shown, As an alternate to Item 1) — For use with Items 2E, 5F or 5G or 5I only, channel shaped, fabricated from min. 0.015 in. (min bare metal thickness) galvanized steel, attached to floor and ceiling with fasteners 24 in. OC. max.</li> <li>CLARKDIETRICH BUILDING SYSTEMS — CD ProTRAK</li> </ul>
	DMFCWBS L L C — ProTRAK
	MBA BUILDING SUPPLIES — ProTRAK RAM SALES L L C — Ram ProTRAK
	SOUTHEASTERN STUD & COMPONENTS INC - ProTRAK
В	STEEL STRUCTURAL SYSTEMS L L C — Tri-S ProTRAK
В	1F. Framing Members* - Floor and Ceiling Runner — Not shown - In lieu of Item 1 — For use with Item 2F, proprietary channel shaped runners, minimum width to accommodate stud size, with 1- 1/8 in. long legs fabricated from min 0.015 in. (min bare metal thickness) galv steel, attached to floor and ceiling with fasteners spaced 24 in. OC max. SUPER STUD BUILDING PRODUCTS — The Edge
	1G. Framing Members* - Floor and Ceiling Runner — For use with Item 2G, proprietary channel shaped runners, minimum width to accommodate stud size attached to floor and ceiling with fasteners 24 in. OC max. <b>STUDCO BUILDING SYSTEMS</b> — CROCSTUD Track
	1H. Floor and Ceiling Runners — (Not shown) — Channel shaped, fabricated from min 0.02 in. galv steel, min width to accommodate stud size, with min 1 in. long legs, for use with studs specified below and fabricated from min 0.02 in. galv steel or thicker, attached to floor and ceiling with fasteners spaced max 24 in. OC. MARINO/WARE, DIV OF WARE INDUSTRIES INC — Viper20 <sup>™</sup> Track VT100.
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	1
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II. Framing Men ers\* – Floor and Ceiling Runners – (Not shown, As an alternate to Item 1) – For use C. Framing Members\* — Optional - Not Shown - Used as an alternate method to c:tach resilient channels  $\gamma$  When Item 7B, Steel Framing Members\*, is used, Nonbearing Wall Rating is limited to 1 Hr. Min. stud dept $\emph{4}$  is with Items 2H, ch/inel shaped, fabricated from min. 0.015 in. (min bare metal thickness) galvanized steel, (Item 7). Clips attached at each intersection of the resilient channel and the steel  $st_{2}$ ; (Item 2). Resilient 3-1/2 in., min. thickness of insulation (Item 4) is 3 in., and two layers of gypsum board panels (1/2 in. or 5γ attached to floor and ceiling with fasteners 24 in. OC. max. channels are friction fitted into clips, and then clips are secured to the steel stud with min. 1 in. long Type Sin. thick) shall be attached to furring channels as described in Item 6. One layer of gypsum board panels (1/2 12 steel screws through the center hole of the clip and the resilient channel flange. TELLING INDUSTRIES L L C - TRUE-TRACK™ in. or 5/8 in. thick) attached to opposite side of stud without furring channels as described in Item 6. 7D. Framing Members\* - (Not Shown) - (Optional on one or both sides, not shown, for single or double 5A. Gypsum Board\* - (As an alternate to Item 5) - 5/8 in. thick, 24 to 54 in. wide, applied horizontally as layer systems) — As an alternate to Item 7, furring channels and Steel Framing Members as described below: the outer layer to one side of the assembly. Secured as described in Item 6. 1J. Framing Members\* - Floor and Ceiling Runner - Not shown - In lieu of Item 1 - For use with Item a. Furring Channels - Formed of No. 25 MSG galv steel. 2-3/8 in. wide by 7/8 in. deep, CGC INC - Type SHX. 2I, proprietary channel shaped runners, 3-5/8 in. deep attached to floor and ceiling with fasteners 24 in. OC spaced max. 24 in. OC perpendicular to studs. Channels secured to studs as described in Item b. Gypsum board attached to furring channels as described in Item 6. Not for use with Item 5A and 5E. **TELLING INDUSTRIES L L C** — Viper25<sup>™</sup> Track UNITED STATES GYPSUM CO - Type FRX-G, SHX b. Steel Framing Members\* — Used to attach furring channels (Item 7Aa) to studs (Item 2). Clips spaced max. 48 in. OC. GENIECLIPS secured to studs with No. 8 x 1-1/2 in. minimum self-drilling, S-12 steel screw through the center grommet. Furring channels 1K. Framing Members\* - Floor and Ceiling Runner - Not shown - In lieu of Item 1 - For use with Item **USG MEXICO S A DE C V** — Type SHX. are friction fitted into clips. 2J, proprietary channel shaped runners, 1-1/4 in. wide by 3-5/8 in. deep fabricated from min 0.020 in. thick galv steel, attached to floor and ceiling with fasteners spaced 24 in. OC max. PLITEQ INC — Type GENIECLIP **TELLING INDUSTRIES L L C** − Viper20<sup>TM</sup> Track 5B. Gypsum Board\* - (Not Shown) - As an alternate to Item 5 when used as the base layer on one or both sides of wall when 5/8 in or 3/4 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. or ¾ in. may be used as alternate to all 5/8 in. or ¾ in. shown 7E. Steel Framing Members - (Optional, Not Shown)\* - Furring channels and resilient sound isolation clip 2. Steel Studs – Channel shaped, fabricated from min 25 MSG corrosion-protected steel, min depth as in Item 5, Wallboard Protection on Each Side of Wall table. Nom 5/8 in. or 3/4 in. thick lead backed gypsum as described below: indicated under Item 5, spaced a max of 24 in. OC. Studs to be cut 3/8 to 3/4 in. less than assembly height. panels with beveled, square or tapered edges, applied vertically. Vertical joints centered over studs and a. Furring Channels - Formed of No. 25 MSG galv steel. Spaced 24 in. OC staggered min 1 stud cavity on opposite sides of studs. Gypsum board secured to 20 MSG steel studs Item 2A perpendicular to studs. Channels secured to studs as described in Item b. Ends of 2A. Steel Studs - (As an alternate to Item 2, For use with Items 5B, 5E, 5H and 5J) Channel shaped, with 1-1/4 in. long Type S-12 steel screws spaced 8 in. OC at perimeter and 12 in. OC in the field. To be used adjoining channels overlapped 6 in. and secured together with four self-tapping No. 8x1/2 fabricated from min 20 MSG corrosion-protected or galv steel, 3-1/2 in. min depth, spaced a max of 16 in. OC. with Lead Batten Strips (see Item 11) or Lead Discs or Tabs (see Item 12). Self Drilling screws (2 per side 1 in. and 4 in. from overlap edge). Gypsum board attached Studs friction-fit into floor and ceiling runners. Studs to be cut 5/8 to 3/4 in. less than assembly height. to furring channels as described in Item 4. Side joint furring channels shall be attached to **RAY-BAR ENGINEERING CORP** – Type RB-LBG 2B. Framing Members\* - Steel Studs - (As an alternate to Item 2, For use with Items 5C or 5I) studs with RESILMOUNT Sound Isolation Clips - located approximately 2 in. from each end Proprietary channel shaped studs, 3-5/8 in. deep spaced a max of 24 in. OC. Studs to be cut 3/4 in less than of length of channel. Both Gypsum Boards at side joints fastened into channel with screws the assembly height and installed with a  $V_2$  in. gap between the end of the stud and track at the bottom of the spaced 8 in. OC, approximately 1/2 in. from joint edge. Not for use with Item 5A and 5E. 5C. Gypsum Board\* — (For Use With Item 2B) Rating Limited to 1 Hour. 5/8 in. thick, 48 in. wide, Gypsum wall. For direct attachment of gypsum board only. panels with beveled, square or tapered edges, applied vertically or horizontally. (Vertical Application) - The b. Steel Framing Members\* — Resilient sound isolation clip used to attach furring **CALIFORNIA EXPANDED METAL PRODUCTS CO** − Viper25<sup>™</sup> gypsum board is to be installed on each side of the studs with 1 in. long Type S coated steel screws spaced 8 channels (Item 7Ea) to studs. Clips spaced 24 in. OC., and secured to studs with No. 10 in. OC starting 4 in. from the edge of the board at the vertical edges and 12 in. OC starting 6 in. from the edge x 2-1/2 in. coarse drywall screw through the center hole. Furring channels are friction of the board at the center of each board. Gypsum boards are to be secured to the top and bottom track with fitted into clips. screws spaced 8 in. OC starting 4 in. from the board edge. Fasteners shall not penetrate through both the stud CRACO MFG INC - SmartStud™ and the track at the same time. Vertical joints are to be centered over studs and staggered one stud cavity on **STUDCO BUILDING SYSTEMS** – RESILMOUNT Sound Isolation Clips - Type A237 or opposite sides of studs. (Horizontal Application) - The gypsum board is to be installed on each side of the studs with 1 in. long Type S coated steel screws spaced 8 in. OC starting 4 in. from the edge of the board at the vertical edges and 12 in. OC starting 6 in. from the edge of the board at the center of each board. Gypsum MARINO/WARE, DIV OF WARE INDUSTRIES INC - Viper25™ boards are to be secured to the top and bottom track with screws spaced 8 in. OC starting 4 in. from the board 8. Joint Tape and Compound – Vinyl or casein, dry or premixed joint compound applied in two coats to edge. Fasteners shall not penetrate through both the stud and the track at the same time. All horizontal joints joints and screw heads of outer layers. Paper tape, nom 2 in. wide, embedded in first layer of compound over are to be backed as outlined under section VI of Volume 1 in the Fire Resistive Directory. all joints of outer layer panels. Paper tape and joint compound may be omitted when gypsum panels are PHILLIPS MFG CO L L C − Viper25<sup>™</sup> CGC INC - Type SCX. supplied with a square edge. 9. Siding, Brick or Stucco – (Optional, not shown) – Aluminum, vinyl or steel siding, brick veneer or stucco, meeting the requirements of local code agencies, installed over gypsum panels. Brick veneer attached 2C. Framing Members\* - Steel Studs - Not shown - In lieu of Item 2 - proprietary channel shaped steel UNITED STATES GYPSUM CO - Type SCX, SGX. to studs with corrugated metal wall ties attached to each stud with steel screws, not more than each sixth studs, min depth as indicated under Item 5, spaced a max if 24 in. OC, fabricated from min 0.020 in. thick galv course of brick. steel. Studs cut 3/8 in. to 3/4 in. less in lengths than assembly heights. 10. Caulking and Sealants\* - (Optional, not shown) - A bead of acoustical sealant applied around the CALIFORNIA EXPANDED METAL PRODUCTS CO - Viper20™ **USG MEXICO S A DE C V** — Type SCX. partition perimeter for sound control. **UNITED STATES GYPSUM CO** - Type AS MARINO/WARE, DIV OF WARE INDUSTRIES INC - Viper20™ 5D. **Gypsum Board\*** – (As an alternate to Item 5) – 5/8 in. thick, 48 in. wide, applied vertically or horizontally. Secured as described in Item 6. For use with Items 1 and 2 only. 11. Lead Batten Strips – (Not Shown, For Use With Item 5B) - Lead batten strips, min 1-1/2 in. wide, max **UNITED STATES GYPSUM CO** - Type USGX. PHILLIPS MFG CO L L C − Viper20<sup>™</sup> 10 ft long with a max thickness of 0.125 in. Strips placed on the interior face of studs and attached from the exterior face of the stud with two 1 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 batten strips to have a purity of 99.9% meeting the Federal specification QQ-L-201f, Grade "C". Lead batten strips required behind vertical joints of lead backed gypsum wallboard 5E. Gypsum Board\* - (Not Shown) - (As an alternate to Item 5 when used as the base layer on one or both 2D. Framing Members\* – Steel Studs – In lieu of Item 2 - Channel shaped studs, min depth as indicated (Item 5B) and optional at remaining stud locations. Required behind vertical joints. sides of wall when 1/2 in. or 5/8 in thick products are specified, For direct attachment only to steel studs Item under Item 5, spaced a max of 24 in. OC. Studs to be cut 3/4 in. less than assembly height. 2A, not to be used with Item 3). Nominal 5/8 in. thick lead backed gypsum panels with beveled, square or 11A. Lead Batten Strips - (Not Shown, For Use With Item 5H) Lead batten strips, 2 in. wide, max 10 ft long tapered edges, applied vertically. Vertical joints centered over studs and staggered min 1 stud cavity on ALLSTEEL & GYPSUM PRODUCTS INC — Type SUPREME Framing System with a max thickness of 0.140 in. Strips placed on the face of studs and attached to the stud with two min. 1 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 in. long min. Type S-8 pan head steel screws, one at the top of the strip and one at the bottom of the strip or bugle head fine driller) steel screws spaced 8 in. OC at perimeter and 12 in. OC in the field. with one min. 1 in. long min. Type S-8 pan head steel screw at the top of the strip. Lead batten strips to have a purity of 99.9% meeting the Federal specification QQ-L-201f, Grades "A, B, C or D". Lead batten strips **CONSOLIDATED FABRICATORS CORP, BUILDING PRODUCTS DIV** — Type SUPREME Framing System NEW ENGLAND LEAD BURNING CO INC, DBA NELCO - Nelco required behind vertical joints of lead backed gypsum wallboard and optional at remaining stud locations. 12. Lead Discs or Tabs - (Not Shown, For Use With Item 5B) - Used in lieu of or in addition to the lead QUAIL RUN BUILDING MATERIALS INC - Type SUPREME Framing System 5F. Gypsum Board\* - (As an alternate to Item 5) - For use with Items 1E and 2E and limited to 1 Hour batten strips (Item 11) or optional at other locations - Max 3/4 in. diam by max 0.125 in. thick lead discs compression fitted or adhered over steel screw heads or max 1/2 in. by 1-1/4 in. by max 0.125 in. thick lead Rating only, Gypsum panels with beveled, square or tapered edges, applied vertically, and fastened to the tabs placed on gypsum boards (Item 5B) underneath screw locations prior to the installation of the screws. SCAFCO STEEL STUD MANUFACTURING CO - Type SUPREME Framing System steel studs with 1 in. long Type S screws spaced 8 in. OC along vertical and bottom edges and 12 in. OC in the Lead discs or tabs to have a purity of 99.9% meeting the Federal specification QQ-L-201f, Grade "C". field. Vertical joints centered over studs and staggered one stud cavity on opposite sides of studs. Steel stud depth shall be a minimum 3-5/8 in. 12A. Lead Discs - (Not Shown, for use with Item 5H) Max 5/16 in. diam by max 0.140 in. thick lead discs compression fitted or adhered over steel screw heads. Lead discs to have a purity of 99.9% meeting the **STEEL CONSTRUCTION SYSTEMS INC** – Type SUPREME Framing System **UNITED STATES GYPSUM CO** - 5/8 in. thick Type SCX, SGX. Federal Specification OQ-L-201f, Grades "A, B, C or D". 13. Lead Batten Strips - (Not Shown, For Use With Item 5E) Lead batten strips, 2 in. wide, max 10 ft long **UNITED METAL PRODUCTS INC** – Type SUPREME Framing System with a max thickness of 0.142 in. Strips placed on the face of studs and attached to the stud with two min. 1 5G. **Gypsum Board\*** – (As an alternate to Item 5) – For use with Items 1E and 2E only, Gypsum panels in, long min. Type S-8 pan head steel screws, one at the top of the strip and one at the bottom of the strip or with beveled, square or tapered edges, applied vertically or horizontally, as specified in the table below and with one min. 1 in. long min. Type S-8 pan head steel screw at the top of the strip. Lead batten strips to have fastened to the steel study as described in Item 6. Vertical joints centered over study and staggered one stud a purity of 99.9% meeting the Federal specification QQ-L-201f, Grade "C". Lead batten strips required behind cavity on opposite sides of studs. Vertical joints in adjacent layers (multilayer systems) staggered one stud 2E. Framing Members\*- Steel Studs - (Not shown, As an alternate to Item 2) - For use with Items 5F or vertical joints of lead backed gypsum wallboard (Item 5E) and optional at remaining stud locations. cavity. Horizontal joints need not be backed by steel framing. Horizontal edge joints and horizontal butt joints 5G or 5I only, channel shaped studs, min depth as indicated under Item 5F, 5G or 5I, fabricated from min. on opposite sides of studs need not be staggered. Horizontal edge joints and horizontal butt joints in adjacent 0.015 in. (min bare metal thickness) galvanized steel, spaced a max of 24 in. OC. Studs to be cut 3/4 in. less 14. Lead Tabs – (Not Shown, For Use With Item 5E) 2 in. wide, 5 in. long with a max thickness of 0.142 in. ayers (multilayer systems) staggered a min of 12 in. The thickness and number of layers for the 2 hr, 3 hr than assembly height. Tabs friction-fit around front face of stud, the stud folded back flange, and the back face of the stud. Tabs and 4 hr ratings are as follows: equired at each location where a screw (that secures the gypsum boards, Item 5E) will penetrate the stee CLARKDIETRICH BUILDING SYSTEMS - CD ProSTUD stud. Lead tabs to have a purity of 99.9% meeting the Federal specification QQ-L-201f, Grade "C". Lead tabs Gypsum Board Protection on Each Side of Wall may be held in place with standard adhesive tape if necessary. \*Bearing the UL Classification Mark DMFCWBS L L C - ProSTUD Min Thkns of Min Stud No. of Layers Rating, Depth, in. & Thickness Insulation Last Updated on 2013-08-15 Hr Item 2E of Panel (Item 4) **MBA BUILDING SUPPLIES** - ProSTUD 1-5/8 2 lavers, 1/2 in. thi Optional System No. BW-S-0002 June 12, 2003 1-5/8 2 layers, 5/8 in. thic Optional Assembly Ratings - 1 and 2 Hr (See Item 1) L Rating at Ambient — less than 1 CFM/Lin I RAM SALES L L C — Ram ProSTUD Optional 1-5/8 3 lavers, 1/2 in. thic ating at 400° F — Less than 1 CFM/lin R Nominal Joint Width - 3/4 In. 3 layers, 5/8 in. thick Optional 1-5/8 SOUTHEASTERN STUD & COMPONENTS INC - ProSTUD Optional 1-5/8 4 lavers, 5/8 in, thic 1-5/8 4 layers, 1/2 in. thick Optional STEEL STRUCTURAL SYSTEMS L L C - Tri-S ProSTUD CGC INC - 1/2 in. thick Type C, IP-X2 or IPC-AR; 5/8 in. thick Type AR, C, IP-AR, IP-X1, IP-X2, IPC-AR, SCX, SHX, or; 3/4 in. thick Types IP-X3 or ULTRACODE 2F. Framing Members\* - Steel Studs - Not shown - In lieu of Item 2 - proprietary channel shaped steel studs, minimum width indicated under Item 5, 1-1/4 in. deep fabricated from min 0.015 in. (min bare metal (2A) thickness) galvanized steel. Studs 3/8 in. to 3/4 in. less in lengths than assembly heights. **UNITED STATES GYPSUM CO** – 1/2 in. thick Type C, IP-X2, IPC-AR or; 5/8 in. thick Type SCX, SGX, SHX, IP-X1, AR, C, , FRX-G, IP-AR, IP-X2, IPC-AR ; 3/4 in. thick Types IP-X3 or ULTRACODE SUPER STUD BUILDING PRODUCTS — The Edge **USG MEXICO S A DE C V** - 1/2 in. thick Type C, IP-X2, IPC-AR or; 5/8 in. thick Type AR, C, IP-AR, IP-X1, 2G. Framing Members\* - Steel Studs - Not shown - In lieu of Item 2 - proprietary channel shaped studs, (3)IP-X2, IPC-AR, SCX, SHX, or; 3/4 in. thick Types IP-X3 or ULTRACODE minimum width indicated under Item 5, Studs to be cut 3/8 to 3/4 in less than the assembly height. STUDCO BUILDING SYSTEMS - CROCSTUD 5H. Gypsum Board\* - (Not Shown) - (As an alternate to Item 5 when used as the base layer on one or both sides of wall when 5/8 or 3/4 in thick products are specified. For direct attachment only to steel studs Item 2A, 2H. Framing Members\*- Steel Studs - (Not shown, As an alternate to Item 2) - Fabricated from min. (not to be used with Item 3) - Nom 5/8 or 3/4 in, may be used as alternate to all 5/8 or 3/4 in, shown in Item 0.015 in. (min bare metal thickness) galvanized steel, spaced a max of 24 in. OC. Studs to be cut 3/4 in. less 5, Wallboard Protection on Each Side of Wall table. Nom 5/8 or 3/4 in. thick lead backed gypsum panels with than assembly height. beveled, square or tapered edges, applied vertically. Vertical joints centered over 20 MSG steel studs and staggered min 1 stud cavity on opposite sides of studs. Wallboard secured to studs with 1-1/4 in. long Type S-TELLING INDUSTRIES L L C — TRUE-STUD™ 12 steel screws spaced 8 in. OC at perimeter and 12 in. OC in the field. Gypsum board secured to 20 MSC steel studs Item 2B with 1-1/4 in. long Type S-12 steel screws spaced 8 in. OC at perimeter and 12 in. OC in the field. For Joint Compound see Item 5. To be used with Lead Batten Strips (see Item 11A) or Lead Discs (see Item 12A). 2I. Framing Members\* - Steel Studs - (As an alternate to Item 2, For use with Items 5C or 5L) -Proprietary channel shaped studs, 3-5/8 in. deep spaced a max of 24 in. OC. Studs to be cut 3/4 in less than MAYCO INDUSTRIES INC — Type X-Ray Shielded Gypsum the assembly height and installed with a 1/2 in. gap between the end of the stud and track at the bottom of the wall. For direct attachment of gypsum board only. . Roor Assembly — Min 4-1/2 in, thick reinforced lightweight or normal weight (100-150 pcf) structural concrete. Roor may also be constructed of any 6in. thick UL Classified hollow-core Precast Concrete Units\*. TELLING INDUSTRIES L L C - Viper25™ See Precast Concrete Units category in the Fire Resistance Directory for names of manufactures. 5I. Gypsum Board\* - (As an alternate to Item 5) - Nom. 5/8 in. thick gypsum panels with beveled, square or tapered edges installed as described in Item 5. Steel stud minimum depth shall be as indicated in Item 5. 2. Wall Assembly — The 1 or 2 h fire-rated gypsum board/steel stud wall assembly shall be constructed of the materials and in the manner specified in the individual U400 or V400 Series Wall or Partition Design in the UL fire Resistance Directory. In addition, the wall may incorporate a head-of-wall CGC INC - Type ULX 2J. Framing Members\* - Metal Studs - Not shown - In lieu of Item 2 - proprietary channel shaped steel joint system as specified in the HW Series Joint Systems in the UL Fire Resistance Directory. The wall shall include the following construction features: A. Steel Hoor Runners — Roor runners of wall assembly shall consist of min No. 25 gauge galvisteel channels sized to accommodate steel studs, min depth as indicated under Item 5, spaced a max if 24 in. OC, fabricated from min 0.020 in. thick galv studs (Item 2B). Roor runners to be provided with 1-1/4 in, flanges, Runners secured with steel fasteners spaced 12 in, OC, B. Studs — Steel studs to be min 3-1/2 in. wide. Studs cut 1/2 to 3/4 in. less in length than assembly height with bottom nesting in, resting on **UNITED STATES GYPSUM CO** – Type ULX and fastened to floor runner with sheet metal screws. Stud spacing not to exceed 24 in. OC. TELLING INDUSTRIES L L C — Viper20™ C. Gypsum Board\*— Gypsum board installed to a min total thickness of 5/8 or 1-1/4 in. on each side of wall for a 1 or 2 hr rated wall, USG MEXICO S A DE C V - Type ULX respectively. Wall to be constructed as specified in the individual U400 or V400 Series Design in the UL Fire Resistance Directory, except that a max 3/4 in. gap shall be maintained between the bottom of gypsum board and top of concrete floor. The hourly fire rating of the joint system is equal to the hourly fire rating of the wall. 3. Wood Structural Panel Sheathing — (Optional, For use with Item 5 Only.) - (Not Shown) - 4 ft wide, 7/16 in. thick oriented strand board (OSB) or 15/32 in. thick structural 1 sheathing (plywood) complying with 5J. Gypsum Board\* - (Not Shown) - (As an alternate to Item 5 when used as the base layer on one or both 3. Fill, Void or Cavity Material" Sealant — Max separation between top of floor and bottom of wall is 3/4 in. Min 5/8 in. thickness of fill material installed DOC PS1 or PS2, or APA Standard PRP-108, manufactured with exterior glue, applied horizontally or vertically sides of wall when 1/2 in. or 5/8 in thick products are specified, For direct attachment only to steel studs Item on each side of the wall between the bottom of the gypsum board and the top of the concrete floor, flush with each surface of the wall. 2A, not to be used with Item 3). Nom 5/8 in. thick lead backed gypsum panels with beveled, square or HLII CONSTRUCTION CHEMICALS, DIV OF HILT INC - CP601S Bastomeric Firestop Sealant, CP606 Rexible Firestop Sealant or FS-ONE Sealant Attached to studs with flat-head self-drilling tapping screws with a min. head diam. of 0.292 in. at maximum 6 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 by min. 1/2 in. 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. System No. BW-S-0023 1 hr and 2 hr SHAFT WALL wide, max 8 ft long with a max thickness of 0.14 in. placed on the face of studs and attached to the stud with studs and runners. Min nom thickness as indicated under Item 5. See Batts and Blankets (BKNV or BZJZ) construction adhesive and two 1 in. long Type S-12 pan head steel screws, one at the top of the strip and one Assembly Ratings - 1 and 2 Hr (See Item 2) Categories for names of Classified companies. at the bottom of the strip. Lead discs, nominal 3/8 in. diam by max 0.085 in. thick. Compression fitted or Joint Width — 1 in. Max adhered over the screw heads. Lead batten strips and discs to have a purity of 99.9% meeting the Federal 4A. Batts and Blankets\* - (Optional) - Placed in stud cavities, any glass fiber or mineral wool insulation specification QQ-L-201f, Grade "C". bearing the UL Classification Marking as to Surface Burning Characteristics and/or Fire Resistance. See Batts and Blankets (BKNV or BZJZ) Categories for names of Classified companies. RADIATION PROTECTION PRODUCTS INC - Type RPP - Lead Lined Drywall 5. **Gypsum Board\*** – Gypsum panels with beveled, square or tapered edges, applied vertically or horizontally. Vertical joints centered over studs and staggered one stud cavity on opposite sides of studs. 6. Fasteners – (Not shown) – For use with Items 2 and 2F - Type S or S-12 steel screws used to attach Vertical joints in adjacent layers (multilayer systems) staggered one stud cavity. Horizontal joints need not be panels to studs (Item 2) or furring channels (Item 7). Single layer systems: 1 in. long for 1/2 and 5/8 in. backed by steel framing. Horizontal edge joints and horizontal butt joints on opposite sides of studs need not

steel. Studs cut 3/8 in. to 3/4 in. less in lengths than assembly heights to the steel studs. Vertical joints centered on studs, and staggered one stud space from wallboard joints. in. OC. in the perimeter and 12 in. OC. in the field. When used, fastener lengths for gypsum panels increased 4. Batts and Blankets\* - (Required as indicated under Item 5) - Mineral wool batts, friction fitted between

thick panels or 1-1/4 in. long for 3/4 in. thick panels, spaced 8 in. OC when panels are applied horizontally, or be staggered. Horizontal edge joints and horizontal butt joints in adjacent layers (multilayer systems) 8 in. OC along vertical and bottom edges and 12 in. OC in the field when panels are applied vertically. **Two** staggered a min of 12 in. The thickness and number of layers for the 1 hr, 2 hr, 3 hr and 4 hr ratings are as

Gypsun Board P			
Rating, Hr	Min Stud Depth, in. Items 2, 2C, 2D, 2F		
1			
1			
1			
2			
2			
2			
3			
3			
3			
4			
4			
4			

AR, SCX, SHX, WRX or WRC; 3/4 in. thick Types IP-X3 or ULTRACODE

**UNITED STATES GYPSUM CO** – 1/2 in. thick Type C, IP-X2, IPC-AR or WRC; 5/8 in. thick Type SCX, SGX, SHX, WRX, IP-X1, AR, C, WRC, FRX-G, IP-AR, IP-X2, IPC-AR ; 3/4 in. thick Types IP-X3 or ULTRACODE

X1, IP-X2, IPC-AR, SCX, SHX, WRX, WRC or; 3/4 in. thick Types IP-X3 or ULTRACODE

Gypsum Board Protection on Each Side of Wall

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

CGC INC - 1/2 in. thick Type C, IP-X2 or IPC-AR; WRC, 5/8 in. thick Type AR, C, IP-AR, IP-X1, IP-X2, IPC-

**USG MEXICO S A DE C V** – 1/2 in. thick Type C, IP-X2, IPC-AR or WRC; 5/8 in. thick Type AR, C, IP-AR, IP-

7B. Framing Members\* – (Optional, Not Shown) – As an alternate to Item 7, for single or double layer systems, furring channels and Steel 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 secured to studs as described in Item b. Batts and Blankets placed in stud cavity as described in Item 5. Two layers of gypsum board attached to furring channels as described in Item 5. Not for use with Item 5A and 5E. b. Steel Framing Members\* - Used to attach furring channels (Item 7Ba) to one side of studs (Item 2) only. Clips spaced 48 in. OC., and secured to studs with two No. 8 x 2-1/2 in. coarse drywall screws, one through the hole at each end of the clip. Furring channels are friction fitted into clips.

layer systems: First layer-1 in. long for 1/2 and 5/8 in. thick panels or 1-1/4 in. long for 3/4 in. thick panels,

spaced 16 in. OC. Second layer- 1-5/8 in. long for 1/2 in., 5/8 in. thick panels or 2-1/4 in. long for 3/4 in. thick panels, spaced 16 in. OC with screws offset 8 in. from first layer. Three-layer systems: First layer- 1 in. long

for 1/2 in., 5/8 in. thick panels, spaced 24 in. OC. Second layer- 1-5/8 in. long for 1/2 in., 5/8 in. thick panels, spaced 24 in, OC. Third layer- 2-1/4 in, long for 1/2 in., 5/8 in, thick panels or 2-5/8 in, long for 5/8 in, thick panels, spaced 12 in. OC. Screws offset min 6 in. from layer below. Four-layer systems: First layer- 1 in. long for 1/2 in., 5/8 in. thick panels, spaced 24 in. OC. Second layer- 1-5/8 in. long for 1/2 in., 5/8 in. thick panels, spaced 24 in. OC. Third laver- 2-1/4 in, long for 1/2 in. thick panels or 2-5/8 in. long for 5/8 in. thick panels, spaced 24 in. OC. Fourth layer- 2-5/8 in. long for 1/2 in. thick panels or 3 in. long for 5/8 in. thick

7. Furring Channels — (Optional, not shown, for single or double layer systems) — Resilient furring channels fabricated from min 25 MSG corrosion-protected steel, spaced vertically a max of 24 in. OC. Flange portion attached to each intersecting stud with 1/2 in. long Type S-12 steel screws. Not for use with Item 5A and 5E.

7A. Framing Members\* — (Optional on one or both sides, not shown, for single or double layer systems) —

a. Furring Channels - Formed of No. 25 MSG galv steel. 2-9/16 in. or 2-23/32 in. wide by 7/8 in. deep, spaced max. 24 in. OC perpendicular to studs. Channels secured to studs

as described in Item b. Gypsum board attached to furring channels as described in Item

b. Steel Framing Members\* – Used to attach furring channels (Item 7Aa) to studs

minimum self-drilling, S-12 steel screw through the center hole. Furring channels are

friction fitted into 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 for use with 2-23/32 in. wide furring

PAC INTERNATIONAL INC - Types RSIC-1, RSIC-V, RSIC-1 (2.75), RSIC-V (2.75).

with No. 8 x 1-1/2 in. minimum self-drilling, S-12 steel screw through the center

grommet. RSIC-V and RSIC-V (2.75) clips secured to studs with No. 8 x 9/16 in.

(Item 2). Clips spaced max. 48 in. OC. RSIC-1 and RSIC-1 (2.75) clips secured to studs

As an alternate to Item 7, furring channels and Steel Framing Members as described below:

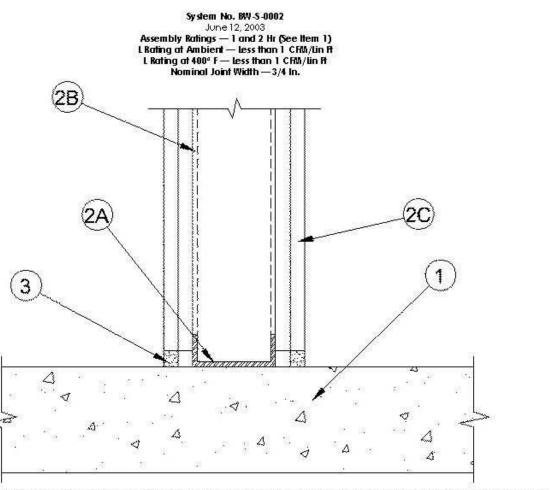
panels, spaced 12 in. OC. Screws offset min 6 in. from layer below.

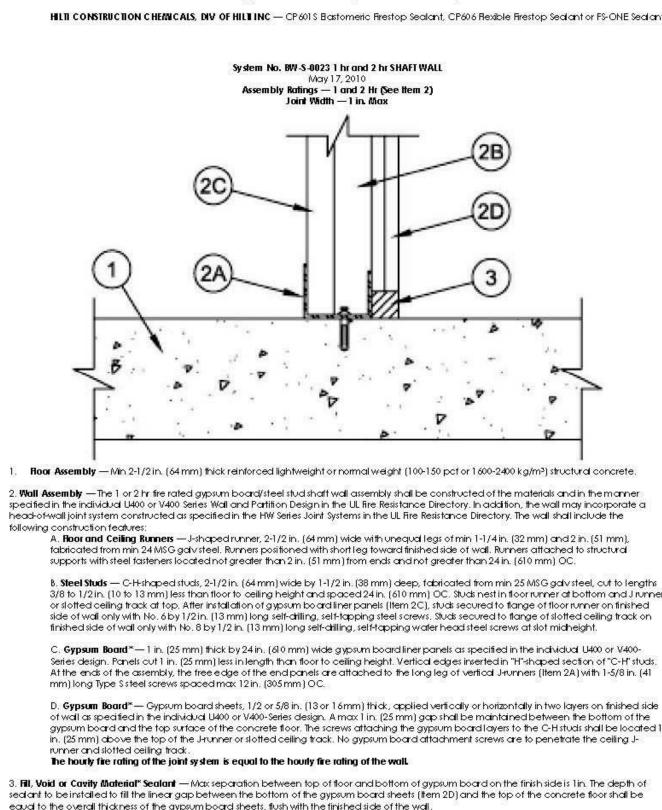
6. Not for use with Item 5A and 5E.

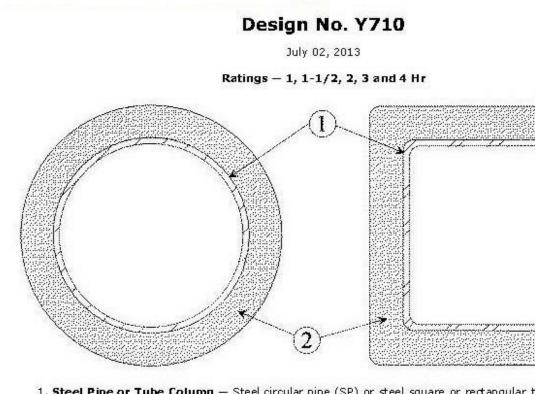
channels.

**KINETICS NOISE CONTROL INC** — Type Isomax

HILT CONSTRUCTION CHEMICALS, DIV OF HILT INC - CP 606







Fire-resistance Ratings - AI/CI/UL 263

1. Steel Pipe or Tube Column - Steel circular pipe (SP) or steel square or rectangular tube (ST) of min sizes as shown in the table below. The A/P ratio of the steel pipe or tube (see Item 2) shall range from 0.18 to

### 2. Spray-Applied Fire Resistive Materials\* - Prepared by mixing with water according to instructions and applying in one or more coats to the thicknesses shown below, to steel surfaces which are dean and free of dirt, loose scale, and oil. Min avg and min ind density for Types MK-6/CBF, MK-6/ED, MK-6/HY, MK-6/HB, MK-6s, MK-6 GF, MK-10 HB, MK-10 HB Extended Set and RG of 15/14 pcf, respectively. Min avg and min ind density for Types Z-106, Z-106/G, Z-106/HY of 22/19 pcf, respectively.

Calumn Cine		Min Thkns In.				
Column Size In.	A/P	1 Hr	1-1/2 Hr	2 Hr	3 Hr	
ST 3x3x3/16	.18	1	1-11/16	2-5/16	3-9/16	
ST 3x3x5/16	.28	11/16	1-1/8	1-1/2	2-5/16	
ST 3x3x1/2	.42	7/16	3/4	1	1-1/2	
ST 8x8x5/8	.58	3/8	5/8	3/4	1-1/8	
ST 20x20x3/4	.72	1/4	3/8	9/16	7/8	
ST 20x20x1	.95	1/4	5/16	7/16	11/16	
ST 32x32x1-1/4	1.20	1/4	1/4	3/8	9/16	
ST 32x32x1-1/2	1.43	1/4	1/4	5/16	1/2	
ST 32x32x1-3/4	1.65	1/4	1/4	1/4	7/16	
ST 32x32x2	1.88	1/4	1/4	1/4	3/8	
SP 3x.216	.20	15/16	1-1/2	2-1/16	3-1/8	
SP 8x.322	.31	5/8	1	1-5/16	2-1/16	
SP 6x.432	.40	1/2	3/4	1	1-9/16	
SP 10x.50	.48	3/8	5/8	7/8	1-3/8	
SP 6x.864	.74	1/4	3/8	9/16	7/8	

The hourly rating of the structural member is dependent upon the ratio of A/P and the thickness of Spray-Applied Fire Resistive Materials, where A is the cross sectional area of the pipe or tube and P is the heated

A/P pipe =

The A/P ratio of a circular pipe is determined by:

t (d-t)	
d	

a+b

Where: d = the outer diam of the pipe (in.)

t = the wall thickness of the pipe (in.)

The A/P ratio of a rectangular or square tube is determined by

A/P tube = t (a+b-2t)

Where:

a = the outer width of the tube (in.)

b = the outer length of the tube (in.) t = the wall thickness of the tube (in.)

The thickness of Spray-Applied Fire Resistive Materials for rating of 3/4, 1, 1-1/2, 2, 3 and 4 h of a steel pipe or tube can be determined by the equation:

> h= R-0.20 4.43 (A/P)

Where:

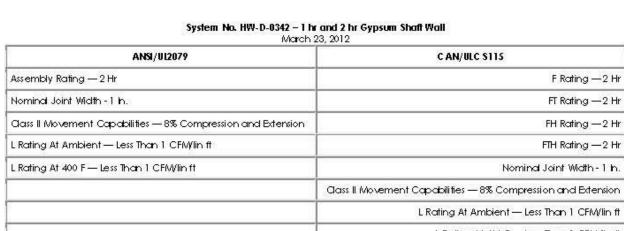
R = the hourly rating (hrs)

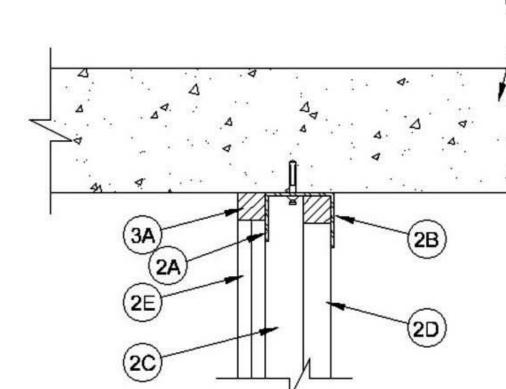
h = the thickness of Spray-Applied Fire Resistive Materials, minimum 1/4 in., maximum 3-7/8 in. ARABIAN VERMICULITE INDUSTRIES - Type MK-6GF, MK-10 HB, MK-10 HB Extended Set.

GRACE KOREA INC - Types MK-6/CBF, MK-6/ED, MK-6/HY, MK-10 HB, MK-10 HB Extended Set, MK-6/HB, MK-6s, MK-6GF, Monokote Acoustic 1, Monokote Acoustic 5, Z-106, Z-106/G, Z-106/HY.

W R GRACE & CO - CONN - Types MK-4, MK-5, MK-6/HY, MK-10 HB, MK-10 HB Extended Set, MK-6/HB, MK-6s, MK-6 GF, Monokote Acoustic 1, Monokote Acoustic 5, RG, Z-106, Z-106/G, Z-106/HY.

\*Bearing the UL Classification Mark





Boor Assembly — Min 2-1/2 in. (64 mm) thick reinforced lightweight or normal weight (100-150 pcf or 1600-2400 kg/m<sup>3</sup>) structural concrete. 2. Shaft Wall Assembly — The 2 hr fire-rated gypsum board /steel stud shaft wall assembly shall be constructed of the materials and in the manner described in the individual U400, V400 or W400 Series Wall and Partition Design in the UL Fire Resistance Directory and shall include the following construction feature A. Hoor and Ceiling Runners - J-shaped runner, 2-1/2 in. (64 mm) wide with unequal legs of min 1-1/4 in. (32 mm) and 2 in. (51 mm), fabricated from min 24 MSG galvsteel. Runners positioned with short leg toward finished side of wall. Runners attached to structural supports with steel fasteners located not greater than 2 in. (51 mm) from ends and not greater than 24 in. (610 mm) OC B. Light Gauge Framing\* - Slotted Ceiling Track — (Optional) Slotted ceiling track shall consist of galvsteel channels with slotted flanges. Stotted ceiling track sized to accommodate steel "C-H" studs (Items 2C). Attached to concrete at ceiling with steel fasteners spaced max 24 in. (610 mm) OC.

MARINO/WARE, DIV OF WARE INDUSTRIES INC - Type SLT

C. Steel Studs — C-H-shaped studs, 2-1/2 in. (64 mm) wide by 1-1/2 in. (38 mm) deep, fabricated from min 25 MSG galvsteel, cut to lengths 3/8 to 1/2 in. (10 to 13 mm) less than floor to ceiling height and spaced 24 in. (610 mm) OC. Studs nest in floor runner at bottom and J runner or slotted ceiling track at top. After installation of gypsum board liner panels (Item 2D), studs secured to flange of floor runner on finished side of wall only with No. 6 by 1/2 in. (13 mm) long self-drilling, self-tapping steel screws. Studs secured to flange of slotted ceiling track on finished side of wall only with No. 8 by 1/2 in. (13 mm) long self-atilling, self-tapping water head steel screws at slot midheight.

