							Sne							
	Civil Engineering Solution	ns	TLM Associates, Inc.	_		TLM Associates, Inc.			D.W. Collier Engineering, In	nc.	D.W. Collier Engineering, Inc.	_		D.W. Collier Engineering, I
	GENERAL / CIVIL		ARCHITECTURAL			STRUCTURAL			MECHANICAL		PLUMBING & FIRE PROTECTION			ELECTRICAL
Sheet#	Description	Revision#	Sheet# Description	Revision#	Sheet#	Description	Revision#	Sheet#	Description	Revision# Sheet#	Description	Revision#	Sheet#	Description
CS.1	Cover Sheet	1 2024-02-21	LS1.1 Life Safety Plan - Overall	1 2024-02-21	S1.0	Abbreviations & General Notes		M1.1	HVAC Plan	P1.1	Plumbing Plan		E1.1	Lighting Plan
			LS1.2 Life Safety - UL Designs		S1.1	Typical Details		M2.1	HVAC Schedules & Details	P2.1	Plumbing Schedules & Details		E2.1	Power Plan
C1.0	Site Plan	1 2024-02-21			S1.2	Schedules & Associated Details							E3.1	Security Plan
C2.0	Grading & Drainage Plan		A1.0 Floor Plan - Overall		S2.0	Foundation Plan				FP1.1	Fire Protection Plan	1 2024-02-08	E4.1	Panel Schedules & One-Line
C3.0	Erosion Control Plan		A1.1 Floor Plan		\$3.0	Foundation Sections				FP2.1	Fire Protection Details		E5.1	General Electrical Information
C4.0	Civil Details		A1.2 Roof Plan & Refl. Ceiling Plan										E5.2	Electrical Details
			A2.1 Finishes & Misc. Details										F5.3	Rated Wall Penetration Details
			A4.1 Exterior Elevations & Building Sections											
FH2-15-2	24 FH Flow Data (For Reference Only)*	* 2024-02-15	A5.1 Wall Sections & Details											
	APPLICABLE CODES & REGULATIONS:	E	BUILDING DESIGN CRITERIA :	E	Building Heigl	nts and Areas	١	Type of Con	struction: Existing & Proposed	Grab Bars:				Area Schedul
	(Note: Dyer County & City of Dyersburg code adoptic	on is 2015 ICC,	Use & Occupancy Classification: Existing & Proposed		(Per IBC 506) Allowable Ar	ea: 10,000 SF per Floor (tabular area).		IBC Type II-	3, Unprotected, Sprinklered	Grab Bars s anywhere	hall be capable of supporting a 250 pound load applied in any along its length.	y direction		
	2012 International Building Code		Occupancy/Use Groups Institutional I-3, Occ. Condition 4 (IBC 308.5)		Frontage Inc 1(f)= [1/1 - 0 2	rease: 51.30'/30' = 0.75. (exist. perimeter open space in accord. w	(1,506,2)	Contractor ceilings der	shall provide 3" tall Painted Stenciled Letters/Labels above noting the fire rating of all rated walls/partitions. Maximum	accessible spacing of Structural :				EXISTING FACILITY -1st Floor (West of 4 HR Fire Wall)
	2012 International Mechanical Code		New Detention and Correctional (LSC Ch. 22)		Sprinkler Incre	$e^{-2\pi i \sigma}$ (such permitting permitting the point permitting pe		label shall l	be 8 FT. on center, along both sides of wall/partition.	Refer to Str	uctural Sheets for information regarding live loads, dead loads,	exis lateral,	st. mezzanine	EXISTING FACILITY -2nd Floor Housing (West of 4 HR Fire Wo NEW ADDITION (West of Existing 4 HR Fire Wall)
	2012 International Plumbing Code 2012 International Fire Code		Special Requirements Based on Use & Occ.:		with IBC 505.	2.1(2), and are not considered a 'story'.)		Fire Protectio	on Systems:	seismic crit	eria, and related information.			Grand Total
	2012 International Energy Conservation Code 2012 NEPA 101 -LIFE SAFETY CODE		Exit Discharge (IBC 408.3.6): Exits are permitted to discharge into a fence courtyard. (area not less than 50 FT from building, for not less than 15 SF/p	d or walled person).	A(a)= {10,000	+ 7,500(frontage incr.) + 30,000(sprinkler incr.)} = 47,500 SF	:	Fire Alarm	System provided (per IBC 907.2.6.3) Sprinkler System provided (per IBC 903.2.6)	Existina Facili	łv:			
	2017 NFPA 70 -National Electric Code		<u>Horizontal Exits</u> (IBC 1025.1 (2)): Horizontal Exits are permitted to comprise required in Group I-3 Occupancies. Min. 6 SF/person shall be provided or	100% of exits n each side	Actual Areas	: (Refer to "Area Schedule")		, cromanc		Constructio	n Completed in 2003 (based on Record Documents)			
	MINIMUM STANDARDS FOR LOCAL ADULT CORRECTIO	DNAL	of the horizontal exit for number of occupants.	ondition 1		sight: 55 FT		Means of Eg	'ess:					
	FACILITIES - Tennessee Corrections Institute T.C.A. §4 Revised January 2018	1-4-140.	Smoke Barrier (IBC 408.6) divides area into two smoke compartments (Exis	iting to	Allowable St	pries: 2-Stories (tabular).		Occupan	Load: (Refer to Life Safety Plan)	Seismic Bracina R	equirements:			SUMMARY OF GENERAL SCOPE OF WORK

Permanent Standby Emergency Power shall be provided for elect. locks, egress

lighting, exit signage, lighting at staff stations, communication systems, fire detection and alarms, and smoke removal systems. Power must be arranged to automatically activate within 10 seconds. (IBC 408.4; LSC 101)

Tennessee Public Building Accessibility Act - 2010 ADA Standards for Accessible Design

CLASSROOM ADDITION TO DYER COUNTY JAIL

for

Dyer County, Tennessee

Dyersburg, Tennessee

Project Address: 401 E Cedar St, Dyersburg, TN 38024

Authorities Having Jurisdiction:

STATE CORRECTIONS ENFORCEMENT: Tennessee Corrections Institute 279D Stewarts Ferry Pike Nashville, TN 37214 www.tn.gov/tci

Ph# 615-741-3816

LOCAL / COUNTY JURISDICTION: Dyer County Code Enforcement Building & Zoning Office 1910 Pioneer Road Dyersburg, TN 38024 Ph# 731-287-0775

STATE FIRE MARSHAL'S OFFICE: Dept. of Commerce and Insurance Division of Fire Prevention Codes Enforcement Section 500 James Robertson Parkway Nashville, TN 37243-1162

Shoot list

Actual Height/ New Addition: <u>16</u> FT.

Mixed Use and Occupancy IBC 508.3 - Nonseparated Occupancies/Uses: N/A

Exit Access Travel Distance (IBC 1017.2): 200 FT Max.

Corridor Fire-Resistance Rating (IBC 1020.1): 1-HR Corridor - Dead Ends (IBC 1020.4): 50 FT Max.

NOTE TO BIDDERS:

THE PRE-ENGINEERED METAL BUILDING (PEMB) ASSEMBLY / PACKAGE IS PROVIDED BY OWNER, AND INSTALLED BY CONCTRACTOR. THIS BID ON/INSTALLATION OF THE PEMB ASSEMBLY AND RELATED INCLUDES PROVIDING AND NSTALLING THE CORRUGATED METAL LINER PANELS (INTERIOR PANELS) AS IDICATED IN THIS DRAWING SET.

Ph# 615-741-7190



Refer to M,P, FP, & E sheets for seismic bracing requirements. Elements such as Mechanical Equipment, Gas Piping, Sprinkler Piping, Electrical Gear, and Lighting Fixtures are noted to require seismic bracing.

SCOPE OF THIS PROJECT CONSISTS OF AN ADDITION TO THE EXISTING FACILITY, TO INCLUDE A CLASSROOM, OFFICES, AND ANCILLARY SPACES, AS INDICATED IN THESE DOCUMENTS.









CS.1









NOTES:

1. BENCHMARK: CROSS-CUT IN N/E WINGWALL OF U.S. HWY. 51 BRIDGE OVER THE NORTH FORKED DEER RIVER SHOWN AS RM7 ON FIRM (FLOOD INSURANCE RATE MAP) SEE MAP 470047 0005 C , PANEL 5 OF 15 ELEVATION = 279.81 (MSL)

<u>VICINITY MAP</u>

- 2. BOUNDARY & TOPOGRAPHIC SURVEY PROVIDED BY MCCLURE ASSOCIATES OF DYERSBURG. DATED APRIL, 2021.
- 3. THIS PROPERTY IS LOCATED IN SPECIAL FLOOD HAZARD AREAS SUBJECT TTO INUNDATION BY THE 1% ANNUAL CHANCE OF FLOOD AND ZONE "X" (ARES OF 0.2% ANNUAL CHANCE; AREAS OF 1% ANNUAL CHANCE FLOOD WITH AVERAGE DEPTHS OF LESS THAN 1 FOOT OR DRAINAGE AREAS LESS THAN 1 SQUARE MILE; AND AREAS PROTECTED BY LEVESS FROM 1% ANNUAL CHANCE OF FLOOD) AS PER FEDERAL EMERGENCY MANAGEMENT AGENCY FLOOD BOUNDARY AND FLOODWAY MAP COMMUNITY PANEL NO. 47054C0194E DATED 10/16/08).
- 4. BUILDING/SITE LAYOUT PROVIDED BY TLM ASSOCIATES. SEE ARCHITECTURAL PLANS FOR BUILDING LAYOUT AND ADDITIONAL SITE DETAILS (I.E, SIDEWALK, ENTRANCES, PATIO AREAS, WHEEL STOPS, CONCRETE APRON, HANDICAP RAMPS, ETC.).
- 5. SEE DETAIL SHEET AND GENERAL NOTES SHEET FOR ADDITIONAL INFORMATION PERTAINING TO THIS SHEET.

GRADING AND DRAINAGE NOTES

- 1. MINIMUM COMPACTION REQUIREMENTS FOR FILL IN AREAS MAY BE ACHIEVED BY PLACING THE FILL IN 6" THICK LOOSE LIFTS AND COMPACTING TO MINIMUM OF 95 PERCENT OF STANDARD PROCTOR DENSITY WITH MOISTURE CONTENT OF COHESIVE FILL MATERIAL MAINTAINED WITHIN TWO TO THREE (2 - 3)PERCENTAGE POINTS OF OPTIMUM AS DEFINED BY THE STANDARD PROCTOR TEST. COMPACTION REQUIREMENTS FOR LAWN AREAS SHALL BE 85 PERCENT OF STANDARD PROCTOR.
- 2. GEOTECHNICAL TESTING AND FREQUENCY: TEST PROPOSED MATERIALS TO VERIFY SUITABILITY FOR USE, GRADUATION OF MATERIAL, MOISTURE-DENSITY RELATION BY D698 STANDARD PROCTOR METHOD, ATTERBERG LIMITS, BEARING VALUE, AND PERCENT OF ORGANIC MATERIALS. TEST FREQUENCY WILL BE AT LEAST 1 (ONE) TEST FOR EACH 2500 S.F. OF FILLED AREA. EACH LIFT WILL BE TESTED TO VERIFY COMPACTION MEETS REQUIREMENTS. REPORTS OF TESTING RESULTS WILL BE SENT TO ENGINEER.
- 3. WHEN FIELD TESTS INDICATE THAT INSTALLED COMPACTED MATERIAL DO NOT MEET REQUIREMENTS, THE CONTRACTOR WILL PROVIDE ADDITIONAL COMPACTION UNTIL SPECIFIED DENSITY IS ACHIEVED, OR REMOVE AND REPLACE DEFECTIVE MATERIAL AS DIRECTED BY SOILS ENGINEER AT NO ADDITIONAL COST TO THE OWNER.
- 4. SITE PREPARATION: ALL TOPSOIL, VEGETATION, ROOTS, AND ANY SOFT SOILS IN THE BUILDING OR PAVEMENT AREAS WILL BE STRIPPED FROM THE GROUND SURFACE AND EITHER HAULED OFF, OR STOCKPILED AS DIRECTED BY THE ENGINEER FOR LATER USE.
- 5. PROPOSED CONTOURS AND SPOT ELEVATIONS INDICATE TOP OF FINISHED GRADE UNLESS OTHERWISE NOTED. PROPOSED GRADES SHOWN IN PROFILE ARE TOP OF CURB ELEVATIONS UNLESS NOTED.
- 6. ALL PROPOSED DRAINAGE PIPES TO BE REINFORCED CONCRETE CLASS III UNLESS OTHERWISE NOTED.
- 7. <u>PIPE FOUNDATIONS</u>: PIPE FOUNDATIONS ON TRENCH BOTTOM SHALL BE LINED WITH APPROVED FILL. THICKNESS OF THE FILL MAT SHALL BE AT LEAST 6".
- 8. <u>BACKFILL REQUIREMENTS:</u> ALL TRENCHES EXCAVATED FOR THE INSTALLATION OF DRAINAGE, PRIVATE SANITARY SEWER, WATER OR ANY UTILITY IN PROPOSED PAVED AREAS SHALL BE COMPACTED AS OUTLINED BELOW:
 - a. WATER SETTLING, PUDDLING AND/OR JETTING OF BACKFILL MATERIALS AS A COMPACTION METHOD ARE NOT ACCEPTABLE.
- b. <u>BACKFILL UNDER, AROUND AND OVER PIPE</u>: IMMEDIATELY AFTER LAYING PIPE, BACKFILL THE TRENCH WITH APPROVED FILL TO AN ELEVATION OF 12" ABOVE THE TOP OF PIPE, MAKING CERTAIN THAT THE FILL IS COMPACTED AROUND THE HAUNCHES OF THE PIPE. GRADE AT 12" ABOVE PIPE TO BE COMPACTED TO 70% RELATIVE DENSITY (ASTM D4254) FROM 12" ABOVE TOP OF PIPE TO FINISHED GRADE OR PAVEMENT SUBGRADE, BACKFILL WITH A CLEAN SUITABLE FILL MATERIAL IN LOOSE LIFTS OF NOT MORE THAN 8" IN THICKNESS. BACKFILL TO BE COMPACTED TO 95% OF MATERIAL'S MAXIMUM DRY DENSITY AS DETERMINED BY THE STANDARD PROCTOR COMPACTION TEST (ASTM D698). THE MATERIAL'S MOISTURE CONTENT WILL BE MAINTAINED TO WITHIN 2% OF ITS OPTIMUM MOISTURE.
- TESTING: IN-PLACE DENSITY TESTS SHOULD BE PERFORMED AT FILL GRADE (12" ABOVE TOP OF PIPE) AND AT EVERY 8" LIFT OF FILL TO FINISHED c. GRADE FOR EVERY 50 LINEAL FEET OF PIPE.
- PRIOR TO PLACEMENT OF BASE MATERIAL, THE AREA TO BE PAVED SHALL BE PROOF-ROLLED. ANY SUBGRADE FAILING THE PROOF-ROLL SHALL BE d. TESTED, AND IF TEST RESULTS FALL BELOW THE SPECIFIED LEVEL IN AN AREA DISTURBED BY THE CONTRACTOR, THE SUBGRADE IN THAT AREA SHALL BE REWORKED TO ACHIEVE THE DENSITY SPECIFIED. ALL SUCH REWORK SHALL BE CONSIDERED INCIDENTAL TO THE SCOPE OF THE PROJECT AND/OR CONTRACT AND SHALL BE AT THE EXPENSE OF THE CONTRACTOR.

<u>GRADING & DRAINAGE PLAN</u>



















<u>CIVIL DETAILS</u>







BXUV.U419 - Fire-resistance Ratings - ANSI/UL 263 http://database - ONLINE CERTIFICATIONS DIRECTORY Design No. U419 **BXUV.U419** Fire-resistance Ratings - ANS Page Bottom Design/System/Construction/Assemble Authorities Having Jurisdiction should be consulted in all cases as to the particular requirement, system, devices, and materials.
Authorities Having Jurisdiction should be consulted before construction.
Fire resistance assemblies and products are developed by the design submitter and ha applicable requirements. The published information cannot always address every const
When field issues arise, it is recommended the first contact for assistance be the techn manufacturer noted for the design. Users of fire resistance assemblies are advised to product category and each group of assemblies. The Guide Information includes specific methods of construction.
Only products which bear UL's Mark are considered Certified. BXUV - Fire Resistance Ratings -BXUV7 - Fire Resistance Ratings - CAN/ULC-See General Information for Fire-resistance Ratings - ANSI/UL 263 See General Information for Fire Resistance Ratings - CAN/ULC-S101 Certified for Canada Design No. U419 May 28, 2015 Nonbearing Wall Ratings — 1, 2, 3 or 4 Hr (See Items * Indicates such products shall bear the UL or cUL Certification Mark for jurisdictic Canada), respectively.



1 of 11 BXUV.U419 - Fire-resistance Ratings - ANSI/UL 263



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No. U419 V.U419 tings - ANSI/UL 263	 Item 5, spaced a max of 24 in. OC. Studs to be cut 3/8 to 3/4 in. less than assembly height. 2A. Steel Studs — (As an alternate to Item 2, For use with Items 5B, 5E, 5H, 5J and 5K) Channel shaped, fabricated from min 20 MSG corrosion-protected or galv steel, 3-1/2 in. min depth, spaced a max of 16 in. OC. Studs friction-fit into floor and celling runners. Studs to be cut 5/8 to 3/4 in. less than assembly height. 2B. Framing Members* - Steel Studs — (As an alternate to Item 2, For use with Items 5C, 5I or 5K) - 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 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. 	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 boards are to be secured to the top and bottom track with screws spaced 8 in. OC starting 4 in. from the board edge. Fasteners shall not penetrate through both the stud and the track at the same time. Vertical joints are to be centered over studs and staggered one stud cavity on 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 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 boards are to be secured to the top and bottom track with screws spaced 8 in. OC starting 4 in. from the edge. Fasteners shall not penetrate through both the stud and the track at the same time. All horizontal joints are to be backed as outlined under section VI of Volume 1 in the Fire Resistive Directory.	drywall screws, one through the hole at each end of the clip. Furring channels are friction fitted into clips. KINETICS NOISE CONTROL INC — Type Isomax 7C. Framing Members* — (Not Shown) — (Optional on one or both sides, not shown, for single or double layer systems) — As an alternate to Item 7, furring channels and Steel Framing Members as described below: a. Eurring Channels — Formed of No. 25 MSG galv steel. 2:3/8 in, wide by 7/8 in, deen, spaced
n/Assembly Usage Disclaimer	CALIFORNIA EXPANDED METAL PRODUCTS CO — Viper25™ CRACO MFG INC — SmartStud25™	CGC INC — Type SCX.	 a. Furring Channels — Formed of No. 25 MSG galv steel. 2-3/8 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 6. Not for use with Item 5A and 5E. 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-chilling, S-12 steel screw through the center grommet. Furring channels are friction fitted into clips.
to the particular requirements covering the installation and use of UL	MARINO/WARE, DIV OF WARE INDUSTRIES INC - Viper25™	USG MEXICO S A DE C V - Type SCX.	PLITEQ INC — Type GENIECLIP
uction. isign submitter and have been investigated by UL for compliance with s address every construction nuance encountered in the field.	PHILLIPS MFG CO L L C − Viper25 [™]	5D. Gypsum Board* — (As an alternate to Item 5) $-$ 5/8 in. thick, 48 in. wide, applied vertically or horizontally. Secured	7D. Steel Framing Members — (Optional, Not Shown)* - Furring channels and resilient sound isolation clip as described
ssistance be the technical service staff provided by the product nblies are advised to consult the general Guide Information for each mation includes specifics concerning alternate materials and alternate	2C. Framing Members* - Steel Studs — Not shown - In lieu of Item 2 — proprietary channel shaped steel studs, min depth as indicated under Item 5, spaced a max if 24 in. OC, fabricated from min 0.020 in. thick galv steel. Studs cut 3/8 in. to 3/4 in. less in lengths than assembly heights. CALIFORNIA EXPANDED METAL PRODUCTS CO — Viper20™	as described in Item 6. For use with Items 1 and 2 only. CGC INC — Type USGX. UNITED STATES GYPSUM CO — Type USGX.	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. Ends of adjoining channels overlapped 6 in. and secured together with four self-tapping No. 8x1/2 Self Drilling screws (2 per side 1 in. and 4 in. from overlap edge). Gypsum board attached to furring channels as described in Item 4. Side joint furring channels shall be attached to studs with RESILMOUNT Sound Isolation Clips - located approximately 2 in from each and of longth of channel. Bath Gyneym Beards of eight joints
e Ratings - ANSI/UL 263 CAN/ULC-S101 Certified for Canada	MARINO/WARE, DIV OF WARE INDUSTRIES INC - Viper20 TM	USG MEXICO S A DE C V — Type USGX.	approximately 2 in. from each end of length of channel. Both Gypsum Boards at side joints fastened into channel with screws spaced 8 in. OC, approximately 1/2 in. from joint edge. Not for use with Item 5A and 5E. b. Steel Framing Members* — Resilient sound isolation clip used to attach furring channels (Item 7Da) to studs. Clips spaced 24 in. OC., and secured to studs with No. 10 x 2-1/2 in. coarse drywall
rtified for Canada	PHILLIPS MFG CO L L C - Viper20 [™]	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	screw through the center hole. Furring channels are friction fitted into clips. STUDCO BUILDING SYSTEMS — RESILMOUNT Sound Isolation Clips - Type A237 or A237R
No. U419	2D. Framing Members*— Steel Studs — In lieu of Item 2 - Channel shaped studs, min depth as indicated under Item 5, spaced a max of 24 in. OC. Studs to be cut 3/4 in. less than assembly height.	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.	8. Joint Tape and Compound — Vinyl or casein, dry or premixed joint compound applied in two coats to joints and screw
or 4 Hr (See Items 4 & 5 through 5K)	ALLSTEEL & GYPSUM PRODUCTS INC — Type SUPREME Framing System	NEW ENGLAND LEAD BURNING CO INC, DBA NELCO — Nelco	Paper tape and joint compound may be omitted when gypsum panels are supplied with a square edge. 9. Siding, Brick or Stucco — (Optional, not shown) — Aluminum, vinyl or steel siding, brick veneer or stucco, meeting the
Mark for jurisdictions employing the UL or cUL Certification (such as respectively.	CONSOLIDATED FABRICATORS CORP, BUILDING PRODUCTS DIV — 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 Rating only, Gypsum panels with beveled, square or tapered edges, applied vertically, and fastened to the steel studs with 1 in. long Type S screws spaced 8 in. OC along vertical and bottom edges and 12 in. OC in the field. Vertical joints centered over	requirements of local code agencies, installed over gypsum panels. Brick veneer attached to studs with corrugated metal wall ties attached to each stud with steel screws, not more than each sixth course of brick.
5	QUAIL RUN BUILDING MATERIALS INC — Type SUPREME Framing System	studs and staggered one stud cavity on opposite sides of studs. Steel stud depth shall be a minimum 3-5/8 in. UNITED STATES GYPSUM CO — 5/8 in. thick Type SCX, SGX.	perimeter for sound control. UNITED STATES GYPSUM CO — Type AS
	SCAFCO STEEL STUD MANUFACTURING CO — Type SUPREME Framing System		11. Lead Batten Strips — (Not Shown, For Use With Item 5B) - Lead batten strips, min 1-1/2 in. wide, max 10 ft long
	STEEL CONSTRUCTION SYSTEMS INC — Type SUPREME Framing System		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 (Item 5B) and optional at remaining stud locations. Required behind
	UNITED METAL PRODUCTS INC — Type SUPREME Framing System		vertical joints. 11A. Lead Batten Strips — (Not Shown, For Use With Item 5H) Lead batten strips, 2 in. wide, max 10 ft long with a max
	2E. Framing Members*— Steel Studs — (Not shown, As an alternate to Item 2) —For use with Items 5F or 5G or 5I or 5K only, channel shaped studs, min depth as indicated under Item 5F, 5G or 5I, fabricated from min, 0.015 in, (min bare		thickness of 0.140 in. Strips placed on the face of studs and attached to the stud with two min. 1 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 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 99.5% meeting the Federal specification 00-L-201f. Grades "B. C or D". Lead batten strips required behind vertical joints of lead backed grosum
5	metal thickness) galvanized steel, spaced a max of 24 in. OC. Studs to be cut 3/4 in. less than assembly height. CLARKDIETRICH BUILDING SYSTEMS — CD ProSTUD		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 batten strips (Item 11) or optional at other locations - May 3/4 in diam by may 0, 125 in thick lead discs compression fitted or adhered
	DMFCWBS L L C - ProSTUD		over steel screw heads or max $1/2$ in. by $1-1/4$ in. by max 0.125 in. thick lead tabs placed on gypsum boards (Item 5B) underneath screw locations prior to the installation of the screws. Lead discs or tabs to have a purity of 99.9% meeting the Federal specification QQ-L-201f, Grade "C".
	MBA METAL FRAMING - ProSTUD		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 99.5% meeting the Federal Specification QQ-L-201f, Grades "B, C or D".
	RAM SALES L L C — Ram ProSTUD		13. Lead Batten Strips — (Not Shown, For Use With Item 5E) Lead batten strips, 2 in. wide, max 10 ft long with a max thickness of 0.142 in. Strips placed on the face of studs and attached to the stud with two min. 1 in. long min. Type S-8 most should straight a max be the strip and area of the strip and area of the strip.
			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, Grade "C". Lead batten strips required behind vertical joints of lead backed gypsum wallboard
7/30/2015 9:55 AM http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/showpag	4 of 11 BXUV.U419 - Fire-resistance Ratings - ANSI/UL 263 http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/showpag	7 of 11 BXUV.U419 - Fire-resistance Ratings - ANSI/UL 263 http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/showpag	10 of 11 7/30/2015 9:55 BXUV.U419 - Fire-resistance Ratings - ANSI/UL 263 http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/showp
	STEEL STRUCTURAL PRODUCTS L L C - Tri-S ProSTUD	5G. Gypsum Board* — (As an alternate to Item 5) — For use with Items 1E and 2E only, Gypsum panels with beveled, square or tapered edges, applied vertically or horizontally, as specified in the table below and fastened to the steel study as	(Item 5E) and optional at remaining stud locations.
(TAB)	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 thickness) galvanized	described in Item 6. Vertical joints centered over studs and staggered one stud cavity on opposite sides of studs. Vertical joints in adjacent layers (multilayer systems) staggered one stud cavity. Horizontal joints need not be backed by steel framing. Horizontal edge joints and horizontal butt joints on opposite sides of studs need not be staggered. Horizontal edge joints and horizontal butt joints on opposite sides of studs need not be staggered. Horizontal edge joints and horizontal butt joints on opposite sides of studs need not be staggered. Horizontal edge joints and horizontal butt joints on opposite sides of studes need not be staggered. Horizontal edge joints and horizontal butt joints on opposite sides of studes need not be staggered. Horizontal edge joints and horizontal butt joints on opposite sides of studes need not be staggered. Horizontal edge	14. Lead Tabs — (Not Shown, For Use With Item 5E) 2 in, wide, 5 in, long with a max thickness of 0.142 in. Tabs friction-fit around front face of stud, the stud folded back flange, and the back face of the stud. Tabs required at each location where a screw (that secures the gypsum boards, Item 5E) will penetrate the steel stud. Lead tabs to have a purity of 99.9% meeting the Federal specification OO-L-201f. Grade "C". Lead tabs may be held in place with standard adhesive
	steel. Studs 3/8 in. to 3/4 in. less in lengths than assembly heights. SUPER STUD BUILDING PRODUCTS — The Edge	of layers for the 2 hr, 3 hr and 4 hr ratings are as follows: Gypsum Board Protection on Each Side of Wall	tape if necessary. * Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.
	2G. Framing Members* - Steel Studs — Not shown - In lieu of Item 2 - proprietary channel shaped studs, minimum width indicated under Item 5, Studs to be cut 3/8 to 3/4 in less than the assembly height.	Min StudNo. of LayersMin Thkns ofRating,Depth, in.& ThicknessInsulationHr.Transof Panel(Item 4)	Last Updated on 2015-05-28
5 2	STUDCO BUILDING SYSTEMS - CROCSTUD	Image: Contraction of the contract	Questions? Print this page Terms of Use Page Top
(7A3) (7Ab)	2H. Framing Members*— Steel Studs — (Not shown, As an alternate to Item 2) — Fabricated from min. 0.015 in. (min bare metal thickness) galvanized steel, spaced a max of 24 in. OC. Studs to be cut 3/4 in. less than assembly height.	2 1-5/8 2 layers, 5/8 in. thick Optional 3 1-5/8 3 layers, 1/2 in. thick Optional	© 2015 OL LLC The appearance of a company's name or product in this database does not in itself assure that products so identified have been manufactured under UL's Follow-Up Service. Only those products bearing the UL Mark should be considered to be Certified and covered under UL's Follow-Up
	TELLING INDUSTRIES L L C - TRUE-STUD	3 1-5/8 3 layers, 5/8 in. thick Optional 4 1-5/8 4 layers, 5/8 in. thick Optional	Service. Always look for the Mark on the product. UL permits the reproduction of the material contained in the Online Certification Directory subject to the following conditions: 1. The Guide Information, Assemblies, Constructions, Designs, Systems, and/or Certifications (files) must be presented in their entirety and in a non-misleading
	channel shaped studs, 3-5/8 in. deep spaced a max of 24 in. OC. Studs to be cut 3/4 in less than the assembly height and installed with a $\frac{1}{2}$ in. gap between the end of the stud and track at the bottom of the wall. For direct attachment of gypsum board only.	4 1-5/8 4 layers, 1/2 in. thick Optional 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; 2/4 in thick Types IP-X2 or IU TRACODE	manner, without any manipulation of the data (or drawings). 2. The statement "Reprinted from the Online Certifications Directory with permission from UL" must appear adjacent to the extracted material. In addition, the reprinted material must include a copyright notice in the following format: "© 2015 UL LLC".
	TELLING INDUSTRIES L L C — Viper25™	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.	
e with Item 2 - Channel shaped, fabricated from min 25 MSG tud size, with min 1-1/4 in. long legs, attached to floor and ceiling	2J. Framing Members* - Metal Studs — Not shown - In lieu of Item 2 — proprietary channel shaped steel studs, min depth as indicated under Item 5, spaced a max if 24 in. OC, fabricated from min 0.020 in. thick galv steel. Studs cut 3/8 in. to 3/4 in. less in lengths than assembly heights TELLING INDUSTRIES L L C — Viper20™	FRX-G, IP-AR, IP-X2, IPC-AR ; 3/4 in. thick Types IP-X3 or ULTRACODE 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, IP-X2, IPC-AR,	
- Not shown - In lieu of Item 1 $-$ For use with Item 2B, proprietary rand ceiling with fasteners 24 in. OC max.	2K. Framing Members*— Steel Studs — As an alternate to Item 2 - For use with Item 1, channel shaped studs,	SCX, SHX, or; 3/4 in. thick Types IP-X3 or ULTRACODE	
/iper25™ Track	fabricated from min 25 MSG corrosion-protected steel, min depth as 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. EB MéTAL INC — EB Stud	wall when 5/8 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 or 3/4 in. may be used as alternate to all 5/8 or 3/4 in. shown in Item 5, Wallboard Protection on Each Side of Wall table. Nom 5/8 or 3/4 in. thick lead backed gypsum panels with beveled, square or tapered edges, applied with the state of the state o	
	2L. Framing Members* — Steel Studs — As an alternate to Item 2 - For use with Item 1, channel shaped studs,	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-12 steel screws spaced 8 in. OC at perimeter and 12 in. OC in the field. Gypsum board secured to 20 MSG 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	
- Viper25™ Track	fabricated from min 25 MSG corrosion-protected steel, min depth as 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. OLMAR SUPPLY INC — PRIMESTUD	Lead Discs (see Item 12A). MAYCO INDUSTRIES INC — Type X-Ray Shielded Gypsum	
	2M. Framing Members* — Steel Studs — As an alternate to Item 2 - For use with Item 1, channel shaped studs,	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.	
inor shown - In lieu of Item 1 — For Use with Item 2C, proprietary p fabricated from min 0.020 in. thick galv steel, attached to floor	Tablicated from min 25 MSG corrosion-protected steel, min depth as 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. MARINO/WARE, DIV OF WARE INDUSTRIES INC — StudRite™	CGC INC - Type ULX	
Viner20 [™] Track	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 DOC PS1 or PS2 or APA	UNITED STATES GYPSUM CO — Type ULX	
	Standard PRP-108, manufactured with exterior glue, applied horizontally or vertically to the steel studs. Vertical joints centered on studs, and staggered one stud space from wallboard joints. Attached to studs with flat-head self-drilling tapping screws with a min. head diam. of 0.292 in. at maximum 6 in. OC. in the perimeter and 12 in. OC. in the field. When used,	USG MEXICO S A DE C V — Type ULX	
- (Not shown) — In lieu of Item 1 - Channel shaped, attached to	 Batts and Blankets* — (Required as indicated under Item 5) — Mineral wool batts, friction fitted between studs and runners. Min nom thickness as indicated under Item 5. See Batts and Blankets (BKNV or BZJZ) Categories for names of 	5]. 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	
EME Framing System	Classified companies. 4A. Batts and Blankets* — (Optional) — Placed in stud cavities, any glass fiber or mineral wool insulation bearing the UL Classification Marking as to Surface Burning Characteristics and/or Fire Resistance. See Batts and Blankets (BKNV or	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. wide, max 8 ft long with a max thickness of 0.14 in. placed on the face of studs and attached	
PRODUCTS DIV — Type SUPREME Framing System	BZJZ) Categories for names of Classified companies. 4B. Batts and Blankets* — For use with Item 5K. Placed in stud cavities, any min. 3-1/2 in. thick glass fiber insulation bearing the UL Classification Marking as to Surface Burning Characteristics and/or Fire Resistance. See Batts and Blankets	one at the bottom of the strip. Lead discs, nominal 3/8 in. diam by max 0.085 in. thick. Compression fitted or a dhered 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".	
REME Framing System	(BKNV or BZJZ) Categories for names of Classified companies. 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. Vertical joints in adjacent layers	RADIATION PROTECTION PRODUCTS INC — Type RPP - Lead Lined Drywall	
7/30/2015 9:55 AM	5 of 11 7/30/2015 9:55 AM	8 of 11 7/30/2015 9:55 AM	11 of 11 7/30/2015 9:55
http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/showpag	BXUV.U419 - Fire-resistance Ratings - ANSI/UL 263 http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/showpag	BXUV.U419 - Fire-resistance Ratings - ANSI/UL 263 http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/showpag	
SUPREME Framing System	(multilayer systems) staggered one stud cavity. Horizontal joints need not be backed by steel framing. Horizontal edge joints and horizontal butt joints on opposite sides of studs need not be staggered. Horizontal edge joints and horizontal butt joints in adjacent layers (multilayer systems) staggered a min of 12 in. The thickness and number of layers for the 1 br 3 br and 4 br rationage are as follows:	5K. Gypsum Board* — (Not Shown) - (As an alternate to Item 5) - Nom. 5/8 in. thick 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. Vertical joints in adjacent layers (multilayer systems) staggered one stud cavity. Horizontal joints in adjacent layers (multilayer systems) staggered one stud cavity. Horizontal joints in adjacent layers (multilayer systems) staggered one stud cavity. Horizontal joints in adjacent layers (multilayer systems) staggered one stud cavity. Horizontal joints in adjacent layers (multilayer systems) staggered one stud cavity.	
EME Framing System	Gypsum Board Protection on Each Side of Wall	not be staggered. Horizontal edge joints and horizontal butt joints in adjacent layers (multilayer systems) need not be staggered. The number of layers for the 1 hr, 2 hr, 3 hr and 4 hr ratings are as follows:	
aming System	Min No. of Min Stud Layers Thkns of Depth, in. & Thkns Insulation	Min No. of Min There of	
e with Item 2A- Channel shaped, fabricated from min 20 MSG odate stud size, with min 1 in. long legs, attached to floor and	Rating, HrRems 2, 2C, 2D, 2P and 2Gor Panel(Rem 4)13-1/21 layer, 5/8 in. thickOptional	Studie Layers Trikins of Depth, in. & Thkns Insulation Rating, Hr Items 2 through 2L of Panel (Item 4B)	
— (Not shown, As an alternate to Item 1) — For use with Items min. 0.015 in. (min bare metal thickness) galvanized steel,	1 2-1/2 1 layer, 1/2 in. thick 1-1/2 in. 1 1-5/8 1 layer, 3/4 in. thick Optional	1 3-5/8 1 layer, 5/8 in. thick 3-1/2 in. 2 1-5/8 2 layers, 5/8 in. thick Optional	
ax. K	2 1-5/8 2 layers, 1/2 in. thick Optional 2 1-5/8 2 layers, 5/8 in. thick Optional	3 1-5/8 3 layers, 5/8 in. thick Optional 4 1-5/8 4 layers, 5/8 in. thick Optional	
	2 3-1/2 1 layer, 3/4 in. thick 3 in. 3 1-5/8 3 layers, 1/2 in. thick Optional	UNITED STATES GYPSUM CO $-$ 5/8 in. thick Type ULIX	
	31-5/82 layers, 3/4 in. thickOptional31-5/83 layers, 5/8 in. thickOptional	6. Fasteners — (Not shown) — For use with Items 2 and 2F - Type S or S-12 steel screws used to attach panels to studs (Item 2) or furring channels (Item 7). Single layer systems: 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 8 in. OC when panels are applied horizontally, or 8 in. OC along vertical and bottom edges and the standard vertical diverties are applied horizontally. The standard vertical is the field when panels are applied horizontally, or 8 in. OC along vertical and bottom edges are applied vertical diverties.	
	4 1-5/8 4 layers, 5/8 in. thick Optional 4 1-5/8 4 layers, 1/2 in. thick Optional	thick panels or 2-1/4 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 1/2 in. 5/8 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.,	
AK .	4 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-AR, SCX, SHX,	thick panels, spaced 12 in. OC. Third layer 2-1/4 in. form layer below. Four-layer systems: First layer-1 in. long for 1/2 in., 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. Screws offset min 6 in. from 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 2-5/8 in. long for 5/8 in. thick panels, spaced 24 in. 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, spaced 24 in. OC. Third layer-2-1/4 in. long for 1/2 in. spaced 24 in. 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, spaced 24 in. OC. Fourth	
- Not shown - In lieu of Item 1 — For use with Item 2F, proprietary te stud size, with 1- 1/8 in. long legs fabricated from min 0.015 in. and ceiling with fasteners spaced 24 in. OC max		layer- 2-5/8 in. long for 1/2 in. thick panels or 3 in. long for 5/8 in. thick panels, spaced 12 in. OC. Screws offset min 6 in. from layer below. 6A. Fasteners — (Not shown) - For use with Item 5K- Type S or S-12 steel screws used to attach panels to studs or	
	IP-X1, AR, C, WRC, FRX-G, IP-AR, IP-X2, IPC-AR; 3/4 in. thick Types IP-X3 or ULTRACODE	8 in. OC along vertical and bottom edges and 12 in. OC in the field when panels are applied vertically. Two layer systems: First layer- 1 in. long screws, spaced 16 in. OC. Second layer- 1-5/8 in. screws, spaced 8 in. OC with screws offset 8 in. from first layer. Three-layer systems: First layer- 1 in. long screws, spaced 24 in. OC. Second layer- 1-5/8 in. long screws, spaced 24 in. OC Third layer. 2-5/8 in. long screws, spaced 8 in. OC. Second layer- 1-5/8 in. long screws, spaced 24 in. OC Third layer. 2-5/8 in. long screws, spaced 8 in. OC. Second layer- 1-5/8 in. long screws,	
– For use with Item 2G, proprietary channel shaped runners, floor and ceiling with fasteners 24 in. OC max.	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-X1, IP-X2, IPC-AR, SCX, SHX, WRX, WRC or; 3/4 in. thick Types IP-X3 or ULTRACODE	system 2: First layer-1 in. long screws, spaced 24 in. OC. Second layer-1-5/8 in. long screws, spaced 24 in. OC. Third layer-2-5/8 in. long screws, spaced 24 in. OC. Fourth layer-3 in. long screws, spaced 8 in. OC. Screws offset min 6 in. from layer below. 7. Furring Channels — (Optional, not shown, for single or double layer systems) — Resilient furring channels fabricated	
nel shaped, fabricated from min 0.02 in. galv steel, min width to with studs specified below and fabricated from min 0.02 in. galv	min. thickness of insulation (Item 4) is 3 in., and two layers of gypsum board panels (1/2 in. or 5/8 in. thick) shall be attached to furring channels as described in Item 6. One layer of gypsum board panels (1/2 in. or 5/8 in. thick) attached to opposite side of stud without furring channels as described in Item 6.	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) — As an	
ers spaced max 24 in. OC. - Viper20™ Track VT100.	5A. Gypsum Board* — (As an alternate to Item 5) — 5/8 in. thick, 24 to 54 in. wide, applied horizontally as the outer layer to one side of the assembly. Secured as described in Item 6. CGC INC — Type SHX.	alternate to Item 7, furring channels and Steel Framing Members as described below: 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	
— (Not shown, As an alternate to Item 1) — For use with Items bare metal thickness) galvanized steel, attached to floor and ceiling	UNITED STATES GYPSUM CO - Type FRY-G SHY	Item b. Gypsum board attached to furring channels as described in Item 6. Not for use with Item 5A and 5E.	
	USG MEXICO S A DE C V - Type SHX.	Clips spaced max. 48 in. OC. RSIC-1 and RSIC-1 (2.75) clips secured to study 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 study with No. 8 x 9/16 in. minimum self-drilling, S-12 steel screw through the center hele. Furring champels are friction fitted into clips. PSIC 1 and RSIC-V lating through the	
Not shown - In lieu of Item 1 — For use with Item 2I, proprietary r and ceiling with fasteners 24 in. OC max.	5B. Gypsum Board* — (Not Shown) - As an alternate to Item 5 when used as the base laver on one or both sides of wall	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 channels.	
	when 5/8 in or ¾ 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 in Item 5, Wallboard Protection on Each Side of Wall table. Nom 5/8 in. or ¾ 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. Gypsum	7B. Framing Members* — (Optional, Not Shown) — As an alternate to Item 7. for single or double layer systems, furring	
- Not shown - In lieu of Item 1 — For use with Item 2J, proprietary ${\mathfrak p}$ fabricated from min 0.020 in. thick galv steel, attached to floor	board secured to 20 MSG steel studs Item 2A 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 with Lead Batten Strips (see Item 11) or Lead Discs or Tabs (see Item 12). RAY-BAR ENGINEERING CORP — Type RB-LBG	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	
	5C. Gypsum Board* — (For Use With Item 2B) Rating Limited to 1 Hour. 5/8 in. thick, 48 in. wide, Gypsum panels with	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	
25 mpg corrosion-protected steel, min depth as indicated under	bereica, square or capered edges, applied vertically of horizontally. (vertical Application) - The gypsum board is to be	(Item 2) only. Clips spaced 48 in. OC., and secured to studs with two No. 8 x $2-1/2$ in. coarse	
7/30/2015 9:55 AM	6 of 11 7/30/2015 9:55 AM	9 of 11 7/30/2015 9:55 AM	

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Plan Legend - Fi	re Ratings
UL Design No. U419 (Refer to Sheet LS1.2)	<u>1-Hour Fire Barrier:</u> 3 5/8" Mtl Studs @ 16" O.C. 5/8" Type "X" Gyp. Bd. Ea. S Top of wall: 10'-0" AFF. Fire wall and all penetrations per Assembly.

Plan Legend	
	Existing Wall: Existing CMU (exterior walls veneer) CMU thickness / typ
₩ ₩ ₩	Exterior Wall - PEMB: Prefinished Mtl Panels, on P Building / 8" Girts, w/ 6" Fibe & Moisture Barrier. Interior: steel panels-extend to roof d fasteners. Provide 4x4-W4: Fabric behind the interior par
7 1/4" 7 7	Interior Partition - 6" Metal 6" Mtl Studs @ 16" O.C., w/ Side, (Painted). Top of wall: where noted otherwise.
4 7/8" 7 7	Interior Partition - 3 5/8" Me 3 5/8" Mtl Studs @ 16" O.C., Side, (Painted). Top of wall: where noted otherwise.
F.E.C.	Fire Extinguisher Cabinet Fire Extinguisher & Cabinet location with jail administrato

- 3. REFER TO PLUMBING DRAWINGS FOR FLOOR DRAIN LOCATIONS. SLOPE SLAB TO DRAIN 1% MIN; 2% MAX.
- 4. VERIFY AND COORDINATE ALL OPENINGS IN PEMB WALLS WITH PEMB SHOP DRAWINGS.

. Side, (Painted). ire-seal head of er U.L. Listed









Ceiling Notes

- MECHANICAL, FIRE PROTECTION, LIGHTING, AND COMMUNICATION DEVICES/COMPONENTS ARE SHOWN FOR REFERENCE ONLY. REFER TO MP&E PLANS. ADJUST LOCATION CONFLICTS AS REQUIRED TO MATCH GRID ON THIS PLAN.
- DIMENSIONS SHOWN ON THIS PLAN ARE TO FINISHED SURFACES / EDGE OF CEILING.
- REFER TO SPECIFICATIONS FOR CEILING TYPES.



2Reflected Ceiling PlanA1.2SCALE: 1/4" = 1'-0"



24" X 24" SUSPENDED ACOUSTICAL CEILING GRID AND TILE
DETENTION CEILING Grade 1 & 2: 24" X 48" PREFINISHED STEEL GRID /PAN SYSTEM, PERFORATED
NO CEILING - EXPOSED STRUCTURE





					Roc	om	ו Fi	ini	sh	Schedule
			FLOOR FINIS	BASE FINISH	WAINSCOT		WAL FINIS	L H		
ROOM NO.	NAME	AREA	Sealed Concrete Epoxy Sealer, Slip resist.	No Base 4" Rubber	No Wainscot	Painted - Latex Enamel	Painted - Alkyd Enamel	None	ROOM SIGNAGE	COMMENTS
L101	Sallyport	94 SF	•	•		•			•	
L102	Interview	93 SF	•	•		•			•	18 GA. CORRUGATED STL. LINER PANELS AT PEMB WALLS, FULL HEIGHT TO ROOF DECK
L103	Hall	90 SF	•	•		•				
L104	Office	119 SF	•	•		•			•	
L105	Toil.	27 SF	•	•			•		•	
L106	Toil. H/C	35 SF	•	•			•		•	
L107	Office	99 SF	•	•		•			•	18 GA. CORRUGATED STL. LINER PANELS AT PEMB WALLS, FULL HEIGHT TO ROOF DECK
L108	Office	99 SF	•	•		•			•	18 GA. CORRUGATED STL. LINER PANELS AT PEMB WALLS, FULL HEIGHT TO ROOF DECK
L109	Classroom	655 SF	•	•		•			•	18 GA. CORRUGATED STL. LINER PANELS AT PEMB WALLS, FULL HEIGHT TO ROOF DECK
L110	Toil. H/C	35 SF	•	•			•		•	
L111	Closet	27 SF				•			•	

Notes - Room Finish Schedule

. STL. LINER PANELS SHALL BE ATTACHED WITH SECURITY HEAD FASTENERS. . ROOM SIGNAGE SHALL BE PAINTED STENCIL SIGNAGE, INCLUDING ROOM NAME AND NUMBER. HELVETICA FONT, 2" TALL CHARACTERS. EXACT LOCATIONS TO BE CONFIRMED BY OWNER. BASE SHALL BE SECURED WITH HIGH STRENGTH SECURITY ADHESIVE IN SALLYPORT, HALL, H/C TOILETS, AND CLASSROOM AREAS.

						DETAILS				Ö	
нт	THICK.	DOOR ELEV/ TYPE	GLASS TYPE	FRAME ELEV/ TYPE	HEAD	JAMB	SILL	FIRE RATING	HWD. SET	DOOR N	REMARKS
)''	2"	DD2	SG-1	DF1	H1A	J1A			DH-1	L101A	DETENTION DOOR & FRAME, w/ ELECTR. ACCESS CONT
)''	2"	DD2	SG-1	DF1	H1	J1			DH-1	L101B	DETENTION DOOR & FRAME, w/ ELECTR. ACCESS CONT
)''	1 3/4"	D2	SG-2	F1	H1A	J1A		20 MIN.	А	L102	
)''	2"	DD2	SG-2	DF1	H1	J1		20 MIN.	DH-1	L103	DETENTION DOOR & FRAME, w/ ELECTR. ACCESS CONT
)''	1 3/4"	D1	N/A	F1	H1	J1		20 MIN.	В	L104	
)''	1 3/4"	D1	N/A	F1	H1	J1			С	L105	
)''	1 3/4"	D1	N/A	F1	H1	J1		20 MIN.	D	L106	
)''	1 3/4"	D1	N/A	F1	H1	J1		20 MIN.	В	L107	
)''	1 3/4"	D1	N/A	F1	H1	J1		20 MIN.	В	L108	
)''	2"	DD1	N/A	DF1	H2	J2	S 1		DH-2	L109	DETENTION DOOR & FRAME, w/ ELECTR. ACCESS CONT
)''	1 3/4"	D1	N/A	F1	H1	J1			D	L110	
)''	1 3/4"	D1	N/A	F1	H1	J1			Е	L111	

Le	egend - Glass Types	Door Notes
ГҮРЕ	DESCRIPTION	1. REFER TO THE SPECIFICATIONS FOR HARDWARE SCHEDULES THAT COORDINATE W
SG-1	1/2" MONOLITHIC MAR RESISTANT POLYCARBONATE, SHEFFIELD PLASTICS MAKROLON AR500, GE PLASTICS MR-10, OR APPROVED EQUAL. WMFL 15 MINUTE FORCED ENTRY,	HARDWARE SET DESIGNATIONS IN THIS DOOR SCHEDULE.
	ASTM F-1233-93, CLASS II (STEP 7).	2. REFER TO DOOR SCHEDULE FOR DETENTION DOORS.
SG-2	1/2" MONOLITHIC MAR RESISTANT POLYCARBONATE, SHEFFIELD PLASTICS MAKROLON	3. ALL DETENTION DOORS SHALL HAVE REMOTE RELEASE FUNCTION FOR DOOR LOCK. REFER TO ELECTRONIC SECURITY SYSTEM SPECIFICATIONS AND ELECTRICAL DRAW
	ASTM F-1233-93, CLASS II (STEP 7) + UL LISTED, LAMINATED 20-MINUTE FIRE-RATED, SAFETY-RATED GLASS (EXPOSED TO CORRIDOR SIDE)	4. SEE FLOOR PLAN FOR ALL RATED WALL LOCATIONS AND TYPES.
		5. ALL RATED DOORS SHALL RECEIVE RATED FRAMES & HARDWARE SETS.
G-1	T THICK, LOW-E, INSULATED GLASS	6. APPLY SEALANT BEAD TO ALL FRAMES ON EACH SIDE.
		7. ALL DOOR STRIKES SHALL BE MOUNTED 36" A.F.F. UNLESS OTHERWISE NOTED, COORDINATE WITH LOCK PREP AND PANIC BAR HEIGHTS.
		8. KEYING SHALL BE COORDINATED WITH OWNER'S GRANDMASTER KEYING SYSTEM.
		9. EXTERIOR H.M. DOORS & FRAMES SHALL BE INSULATED, GALVANIZED & FIELD PAINTE
		10. LINTELS SHOWN ON ALL ARCHITECTURAL DRAWINGS ARE AN INDICATION THAT A LIN EXISTS. REFER TO STRUCTURAL DRAWINGS FOR SPECIFIC LINTEL REQUIREMENTS A OPENINGS.
		11. ALL DOOR GLASS/VISION LITE METAL FRAMES SHALL BE PAINTED.
		12. ALL EXPOSED HARDWARE ON DETENTION DOORS SHALL BE DETENTION GRADE, INC THRESHOLDS AND WEATHER STRIPPING.
		TYPICAL DOOR FRAME DIMENSION TO WALL ON HINGE SIDE UNLESS NOTED OTHERWISE (NOTE: DIM MAY BE REDUCED TO 2" MIN., IF CONSTRAINED BY PUSH / PULL CLEARANCE REQUIREMENTS SHOWN BELOW)
	STRIKE SIDE OF DOOR TO ADJACENT WALL OR OBSTRUCTION	
	PULL SIDE 1'-6" MIN.	STRIKE SIDE OF DOOR JAMB
	STRIKE SIDE OF DOOR JAMB	MINIMUM DISTANCE FROM STRIKE SIDE OF DOOR TO ADJACENT WALL OR OBSTRUCTION

Typical Door Clearances

1	1/2"	=	1'-(



TE WITH

LOCK. DRAWINGS.

ΈM. PAINTED. A LINTEL NTS AT ALL

E, INCLUDING











J-6401B1

A2.1



- PREFINISHED METAL GUTTER

<u>Eave 1</u> (High) 14' - 0''

EXISTING WALL / ROOF EDGE -

	E	BBREVI	ATIONS
ABOVE FINISH FLOOR	÷	AFF	KIPS
	-	ADDN	KIPS PER LINEAL
AIR CONDITIONING		A/C	KIPS PER SQUARE
AIR HANDLING ALTERNATE	-	AHU ALT	LIGHTWEIGHT CONCRETE
ANCHOR	2	ANC	
AND	-	& &	LONG LEG HORIZONTAL
			LONG LEG VERTICAL
APPROXIMATE	H	APPROX.	MANUFACTURE(R)
ARCHITECTURAL AT (WHEN INDICATING	-	ARCH. @	MASONRY MASONRY OPENING
SPACING ONLY)			MATERIAL
BACK TO BACK	=	B TO B	METAL BUILDING
BALANCE BASEMENT	2	BAL BSMT	MANUFACTURER ASSOCIATION
BASE PLATE	-	BSPL	MEZZANINE
BEAM BEARING	-	BM BRG	MIDDLE MINIMUM
BELOW FINISH FLOOR	-	BFF	MISCELLANEOUS
BLACK	2	BLK	MOMENT CONNECTIONS
BLOCKING BOTTOM	# 2	BLKG BOT	NEAR FACE - NF NEAR SIDE
BOTTOM CHORD	-	BCX	
BRIDGING	л Н	BRDG	NOT TO SCALE
BUILDING		BLDG	NUMBER
CENTER		CTR	
CENTERLINE CENTER to CENTER		C TO C	OPPOSITE
CHANNEL CLEAR OR CLEARANCE	2	C CLR	OUTSIDE FACE OUTSIDE DIAMETER
COLUMN		COL	OUTSTANDING LEG
COMPLETE JOINT PENETRATION COMPRESSION	-	CJP COMP	PARALLEL
	-	CONC	PARTITION(S)
CONNECTION(S)	0 2	CONN(S)	PERMANENT
CONTINUOUS CONTRACTOR	н Ш	CONT CONTR	PERPENDICULAR PLATE
	-	CONST	PLUMBING
CORNER	5	COR	POST-TENSION
COVER PLATE	-	COV PL	POUNDS POUNDS PER LINEAL FOOT
DEGREE	57.	DEG OR °	POUNDS PER SQUARE INCH
DEAD LOAD	- 2	DEI	POUNDS PER SQUARE FEET
DIAGONAL	2	DIAG DIA OR Ø	PRECAST CONCRETE PREFABRICATED
DIMENSION (S)	-	DIM(S)	PRELIMINARY
DRAWING(S)	-	DWG(S)	PROTECTION
DOUBLE DOUBLE EXTRA STRONG	8	DBL	RADIUS
DOWEL(S)	-	DWL(S)	REFERENCE
DOWN	5	DN	REINFORCED CONC PIPE REINFORCING
EACH FACH FACE	ж 22	EA FF	REQUIRED RISER - RIS ROOF
EACH WAY	-	EW	
ELEVATION	-	ELEC	ROOM
ELEVATOR	-	ELEV ENGR	ROUND
EQUAL		EQ	SCHEDULE
EXISTING		EQUIP. EXIST.	SHEAR
EXPANSION EXPANSION ANCHOR	-	EXP EXP ANC	SHEET SIMILAR
EXPANSION JOINT	-	EA.	SPACE
EXTENSION EXTERIOR	Ĩ	EXTN	SPECIFICATION(S) SPECIFIED
EXTRA STRONG	×	XS	SQUARE
FABRICATOR	1	FABR	STEEL
FACE TO FACE FAR SIDE	5	F TO F FS FASTENER	STRAIGHT
FIELD VERIFY FINISHED		FV FIN	STIRRUPS STRUCTURE OR STRUCT'
FLANGE	н.	FLG	SYMMETRICAL
FLOOR FLOOR DRAIN	-	FL FD	SUPPORT(S)
FOOT	7	FT	
FOUNDATION		FDN	THICK
FRAMING	-	FRMG	TONGUE AND GROOVE TOP AND BOTTOM
GAGE OR GAUGE	Ē	GALV	TOP CHORD EXTENSION
GENERAL		GEN	TOP OF FOOTING
GOVERNMENT GRADE	-	GOVT GR	TOP OF JOIST TOP OF PIER
	-	GR BM	TOP OF PILE CAP
	-		TOP OF WALL
HARD ROCK HEADED STUD(S)	5 2	HD RK H.S.A.	IREAD TYPICAL
HEIGHT	,	HT	
HOOK	5 8	HK	UNLESS NOTED OTHERWISE
HORIZONTAL	-	HORZ	VERTICAL
	5	INFO	WATER PROOFING
INSIDE FACE	-	I.F.	WELDED WIRE FABRIC
INTERIOR	2		WIND LOAD WINDOW
			WITH
INIUL ST(S)	-	JT JST(S)	WOOD
JOIST GIRDER	Ξ.	JG	WORK POINT

WEIGHT

000 LBS) _F	1.0 1.1.	GENERAL NOTES: STRUCTURAL CONS DRAWINGS INCLUD SPECIFIC DETAILS. C	TRUCTION DOCUMENTS CONSIST OF SPECIFICA DE GENERAL NOTES AND TYPICAL DETAILS IN AD GENERAL NOTES AND TYPICAL DETAILS DESCRIBI	TIONS AND DRAWINGS. DITION TO PLANS, SECTIONS, AND E GENERAL CRITERIA THAT APPLY	4.0 4.1.	EXISTING CONSTRUCTION: THIS SECTION DEALS WITH ATTA CONTRACTOR'S RESPONSIBILITI PROJECT WHERE EXISTING COM	CHMENTS TO, IES RELATED TO NDITIONS APPI	REHABILITATIONS DEXISTING CONSTI LY.	of, assumptions ruction. requir	S OF, AND ED FOR ANY	6.0 6.1.	THE LAT PRI
il SF	1.2.	TO ALL SIMILAR CO ARE SPECIFICALLY F STRUCTURAL CONS	NDITIONS THROUGHOUT THE PROJECT REGARD REFERENCED IN THE PLANS OR DETAILS. TRUCTION DOCUMENTS MUST BE USED IN CON	DLESS OF WHETHER OR NOT THEY	4.2.	4.2.1 EXISTING DRAWINGS: D	YER COUNTY	LAW ENFORCEME	NT CENTER DYERSB	BURG, TENNESSEE		CC ASS BUI
VT		CONSTRUCTION DO DOCUMENTS WITH	DCUMENT SET. THE CONTRACTOR MUST COORE THE DOCUMENTS PROVIDED BY OTHER DISCIPLI MBING, HVAC, AND ELECTRICALL	DINATE THE STRUCTURAL NES (ARCHITECTURAL, CIVIL,	4.3.	EXISTING CONSTRUCTION INDIG DIMENSIONS AND CONDITION	CATED ON DR S PRIOR TO OF	AWINGS IS FOR RE	FERENCE ONLY. V	VERIFY EXISTING VORK. BRING		6.1 6.1
NG H V	1.3. 1.4	PLANS, DETAILS & SI	ECTIONS SHALL NOT BE SCALED FOR QUANTITY STEM WILL ONLY PERFORM AS DESIGNED WHEN	OR LENGTH. I THE SYSTEM HAS BEFN	11	DISCREPANCIES BETWEEN EXIST ON CONTRACT DOCUMENTS T	ING CONDITION O IMMEDIATE	ATTENTION OF AR	D EXISTING CONDI CHITECT/ENGINEER	R.		61
R	0.75	CONSTRUCTED IN IT	IS ENTIRETY. THE CONTRACTOR SHALL PROVIDE AT MEETS ALL REGULATOR REQUIREMENTS FOR	TEMPORARY BRACING DURING WORKER SAFETY, TEMPORARY	4.4.	APPLICABLE BUILDING CODE E HEREIN.	XCEPT FOR A	REAS DIRECTLY AFF	ECTED BY MODIFIC	CATIONS INDICATED		5.1
S D ATL	1.5	CONSTRUCTED.		G ELEMENTS HAVE BEEN	4.5.	REPRESENTATION OF EXISTING S ABOVE.	STRUCTURAL F	RAMING IS BASED	UPON EXISTING DF			61
ax BMA		FABRICATION/CON DISCREPANCIES PR	ISTRUCTION. NOTIFY STRUCTURAL ENGINEER AN IOR TO FABRICATION/CONSTRUCTION.	D ARCHITECT OF ANY	4.6. 4.7.	SURVEY OF EXISTING STRUCTUR DESIGN IS BASED ON FOLLOWI	al framing i NG existing s	STRUCTURE MATERI	DRAWINGS INDIC	ATED ABOVE.	6.2.	THE
CH ZZ	1.6. 2.0	ALL WORKMANSHIF	⁹ & MATERIAL SHALL MEET ACI, AWS, & AISC STA	ANDARDS.		CONCRETE	E SLAB COMP	. strength (f'c): n Compressive st	RENGTH (f'c):	3,000 PSI 3,000 PSI		6.2
d N SC	2.1. 2.2.	CODES AND SPECIE CODES AND SPECIE	FICATIONS: FICATIONS: IN ACCORDANCE WITH REQUIREME	INTS OF THE TENNESSEE STATE FIRE		MASONRY STEEL REINF	WALL COMPR	RESSIVE STRENGTH IELD STRENGTH (Fv	(f'm):):	1,500 PSI 60 KSI		6.2 6.2
2		MARSHALL'S OFFICI REQUIREMENTS OF	E, THE BUILDING SHALL BE DESIGNED AND DETA THE FOLLOWING BUILDING CODES AND SPECIFI FEICE AND THOSE ADOPTED BY THE CONFERNMENT	ILED WITH THE MOST STRINGENT ICATIONS ADOPTED BY THE STATE	4.8.	SHORE AND TEMPORARILY BRA REMOVAL OF EXISTING CONST	CE EXISTING (RUCTION.	CONSTRUCTION AS	S NECESSARY TO A	CCOMMODATE		6.2
м		OVER THE PROJECT	"S LOCATION.		4.9.	PREVENT UNDERCUTTING OF EX INSTALLATION OF NEW CONSTR	KISTING FOUNI RUCTION.	DATION AND SLAB	ON GRADE ELEM	ENTS DURING		J.Z
2 S D. or #		2.2.1.1 GEN 2.2.1.2 CO	IERAL BUILDING CODE: INTERNATIONAL BUILDIN NCRETE: BUILDING CODE REQUIREMENTS FOR R	NG CODE, 2015 EDITION (IBC 2015) EINFORCED CONCRETE (ACI 318-	4.10. 4.11.	PROVIDE MEANS AND METHOD PROVIDE ERECTION PROCEDUI FACILITATE INSTALLATION OF N	DS OF DEMOLI RES, SEQUENC	tion and install Sing, shoring, at	ATION OF NEW WO	ORK. RACING TO		6.2
		14) 2.2.1.3 STRL	JCTURAL STEEL: SPECIFICATIONS FOR STEEL BUILT	DINGS, AMERICAN INSTITUTE OF	4.12.	PROVIDE ENVIRONMENTAL REA ENVIRONMENTAL HAZARDS.	MEDIATION OF	ASBESTOS, LEAD E	BASED PAINTS AND	OTHER		60
P F		STEE 2.2.2 CODES AND	EL CONSTRUCTION (AISC 360-10) D SPECIFICATIONS PER STATE FIRE MARSHALL'S C	DFFICE REQUIREMENTS:	4.13.	PROVIDE REVIEW OF TEMPORA CONSTRUCTION.	RY CONSTRUC	CTION LOADS IMPO	DSED ON NEW OR	EXISTING		0.2
) L		2.2.2.1 GEN 2.2.2.2 COI	IERAL BUILDING CODE: INTERNATIONAL BUILDIN NCRETE: BUILDING CODE REQUIREMENTS FOR R	IG CODE, 2012 EDITION (IBC 2012) EINFORCED CONCRETE (ACI 318-	4.14.	VERIFY ACCESSIBILITY TO BUILD COMMENCING WITH FABRICA CONTINUOUS MEMBERS PROV	ING AND MA) TION. IF NEW	NIMUM WORKABLE BEAMS CANNOT B	MEMBER LENGTHS	s before stalled as single es and partial		
R. RTN(S)		11) 2.2.2.3 STRU STEE	JCTURAL STEEL: SPECIFICATIONS FOR STEEL BUILT	DINGS, AMERICAN INSTITUTE OF	4.15.	PENETRATION WELDING OF WE REMOVE EXISTING FIREPROOFIL	BS OF NEW BE	AMS SPLICES.	REA OF EXISTING S	TEEL TO BE WELDED.		6.2
RM RP	2.3.	VERTICAL DESIGN L 2.3.1 DEAD LOAD	OADS (PSF): DS: ANY CHANGES IN CONSTRUCTION MATERIA	ls from those shown on the		INSTALL NEW UL APPROVED FIR FIREPROOFING WAS REMOVED RATING TO MATCH EXISTING	REPROOFING N OR DAMAGE	MATERIAL ON NEW ED DURING INSTALI	STEEL WORK AND LATION OF WORK.	PROVIDE FIRE	6.3.	PRE
3G EU		ARCHITECTU CONTRACTU CAPACITY (JRAL OR STRUCTURAL DRAWINGS SHALL BE REP OR TO THE STRUCTURAL ENGINEER FOR VERIFIC. OF THE STRUCTURE.	ORTED BY THE GENERAL ATION OF THE LOAD CARRYING	4.16.	REMOVE LOADS FROM SLAB D AND DURING CONSTRUCTION.		CROUT NEW STRUC	EW STEEL IS TO BE IN CTURAL STEEL PRIC	NSTALLED PRIOR TO DR TO REMOVAL OF	6.4.	LO
		2.3.2 LIVE LOADS	ROOF	20 PSF (REDUCIBLE BY CODE)	4.17.	PRIOR TO INSTALLATION OF CO	OMPACT FILING	G SYSTEM. CONSTRUCTION IS		SED DURING	6.5.	THE
=		2.3.3 SNOW LOA	FLOOR SLAB	100 PSF		CONSTRUCTION PROCESS. MC EXISTING CONDITION. DAMAC SHALL BE REPAIRED TO AS GOO	DNITOR AND SU GE TO EXISTING OD OR BETTER	URVEY EXISTING STI S STRUCTURE AS A CONDITION THAN	RUCTURE FOR MO RESULT OF CONTR PRIOR TO BEGINN	VEMENT. MAINTAIN ACTOR'S WORK IING OF	6.6.	PRI PRI
EFAB	2.4	LATERALLOADS	GROUND SNOW LOAD (Pg)	10.0 PSF	4.18.	CONTRACTOR'S WORK. NOTIFY ARCHITECT/ENGINEER I	IF ANY EXISTIN	G CONSTRUCTION	NOT DESIGNATED	FOR REMOVAL	6.7. 6.8.	ENI WA BE
elim Oj		2.4.1 WIND LOAD	DS: ULTIMATE WIND SPEED (3 SEC. GUST)	120 MPH	4 19	INTERFERES WITH INSTALLATION ARCHITECT/ENGINEER PRIOR TO HIRE SPECIALTY ENGINEER PER	OF NEW WOR O REMOVAL C PONSIBLE FOR	CK AND OBTAINING OF INTERFERING CC	DIRECTION FROM DISTRUCTION. HORING AND TEAM		6.9.	RO 6.9
D			WIND IMPORTANCE Iw RISK CATEGORY	1.0 III	7.1 <i>.</i> rs.	TEMPORARY LOADS IMPOSED EXISTING CONSTRUCTION THAT	ON WORK AN	D FOR REMEDIAL R	REPAIR DETAILS OF CTION.	DAMAGE TO	6.10.	SEC
:P INF			EXPOSURE CATEGORY INTERNAL PRESSURE COEFFICIENT	C (±) 0.18 (ENCLOSED)	4.20.	4.20.1 PERFORM DRILLING INT	O EXISTING CO				6.11.	GIR
QD		2.4.2 SEISMIC LO	ADS: 0.2 SEC. MAPPED SPECTRAL RESPONSE ACCEL	(Ss) 2.260		PRIOR TO ATTACHING REINFORCEM REINFORCING AND CC	O ANY EXISTIN ORDINATE AT	NG CONCRETE TO TACHMENT WITH A	DETERMINE LOCA	TION OF EER.	6.13.	BUI
J N			1.0 SEC. MAPPED SPECTRAL RESPONSE ACCEL SHORT PERIOD SPECTRAL RESPONSE COFFE (S	L.(S ₁) 0.829 ds) 1.507		4.20.2 WHERE EXISTING CONC SURROUNDING CONCE REPLACE DAMAGED BU	CRETE REINFOR RETE IN A MAN	REALENT IS TO BE FUNDER WHICH MININ	REUSED IN PLACE, MIZES DAMAGE TO	REMOVE REINFORCEMENT.	6.14.	ARI
HED			1.0 SEC PERIOD SPECTRAL RESPONSE COEFF. (S SEISMIC IMPORTANCE FACTOR (Ie)	Sd1) 0.829 1.25		ARCHITECT/ENGINEER.			NO ALLKOVED B		6.15.	BUI A C PUI
CT T			RISK CATEGORY SITE CLASS	D	5.0 5.1.	CONCRETE NOTES: CONCRETE SHALL MEET THE FO						AN DR
Л			SEISMIC DESIGN CATEGORY	E		DESCRIPTION OF USE	(PSI)	TYPE	(IN.)	(%)		SPE
ECICI						INTERIOR FOOTINGS	4000	NW	3-5	NA		r R(
PEC(S) PECD			BASIC STRUCTURAL SYSTEM & DESIGN VALUES: RESPONSE MODIFICATION COEFF., R	BY PEMB MFR BY PEMB MFR		INTERIOR FOOTINGS EXTERIOR/PERIMETER WALL FOOTINGS	4000	NW NW	3-5 3-5	NA 3-6	7.0	STR
EC(S) ECD D L			BASIC STRUCTURAL SYSTEM & DESIGN VALUES: RESPONSE MODIFICATION COEFF., R OVERSTRENGTH FACTOR, Ω_0 DEFLECTION AMPLIFICATION FACTOR, Cd	BY PEMB MFR BY PEMB MFR BY PEMB MFR BY PEMB MFR		INTERIOR FOOTINGS EXTERIOR/PERIMETER WALL FOOTINGS EXTERIOR EXPOSED PIERS AND WALLS INTERIOR PIERS AND WALLS	4000 4000 4000 4000	NW NW NW	3-5 3-5 3-5 3-5	NA 3-6 3-6 NA	7.0 7.1.	STR STE DR
EC (S) ECD D FF R R			BASIC STRUCTURAL SYSTEM & DESIGN VALUES: RESPONSE MODIFICATION COEFF., R OVERSTRENGTH FACTOR, Ω0 DEFLECTION AMPLIFICATION FACTOR, Cd SEISMIC RESPONSE COEFF., Cs ANALYSIS PROCEDURE	BY PEMB_MFR BY PEMB MFR BY PEMB MFR BY PEMB MFR BY PEMB MFR BY PEMB MFR BY PEMB MFR		INTERIOR FOOTINGS EXTERIOR/PERIMETER WALL FOOTINGS EXTERIOR EXPOSED PIERS AND WALLS INTERIOR PIERS AND WALLS SLAB ON GRADE, INTERIOR SLAB ON GRADE, EXTERIOR	4000 4000 4000 4000 4000 4000 4000	NW NW NW NW NW	3-5 3-5 3-5 3-5 2-4 2-4	NA 3-6 3-6 NA NA 3-6	7.0 7.1.	STR STE DR
EC(S) ECD FF R R RUCT M PT(S)	3.0	GEOTECHNICAL NO	BASIC STRUCTURAL SYSTEM & DESIGN VALUES: RESPONSE MODIFICATION COEFF., R OVERSTRENGTH FACTOR, Ω0 DEFLECTION AMPLIFICATION FACTOR, Cd SEISMIC RESPONSE COEFF., Cs ANALYSIS PROCEDURE DESIGN BASE SHEAR	: BY PEMB_MFR BY PEMB MFR BY PEMB MFR BY PEMB MFR BY PEMB MFR BY PEMB MFR BY PEMB MFR BY PEMB MFR		INTERIOR FOOTINGS EXTERIOR/PERIMETER WALL FOOTINGS EXTERIOR EXPOSED PIERS AND WALLS INTERIOR PIERS AND WALLS SLAB ON GRADE, INTERIOR SLAB ON GRADE, EXTERIOR NOTES: 1. STRENGTH REFERS TO 1	4000 4000 4000 4000 4000 4000 REQUIRED CYL	NW NW NW NW NW LINDER COMPRESS	3-5 3-5 3-5 3-5 2-4 2-4 VE STRENGTH AT 2	NA 3-6 3-6 NA NA 3-6 28 DAYS.	7.0 7.1.	STR STE DR
EC (S) ECD) - FF R R RUCT M PT(S)	3.0 3.1.	GEOTECHNICAL NO GEOTECHNICAL RE CONSTRUCTION MA ADDITION (JOP NO	BASIC STRUCTURAL SYSTEM & DESIGN VALUES: RESPONSE MODIFICATION COEFF., R OVERSTRENGTH FACTOR, Ω ₀ DEFLECTION AMPLIFICATION FACTOR, Cd SEISMIC RESPONSE COEFF., Cs ANALYSIS PROCEDURE DESIGN BASE SHEAR DESIGN BASE SHEAR DTES: PORT: FOUNDATION DESIGN IS BASED ON A GE ATERIALS LABORATORY, INC. ENTITLED DYER CO 0723021 DATED HUX 2023 THE CENERAL CON	BY PEMB MFR BY PEMB MFR		INTERIOR FOOTINGS EXTERIOR/PERIMETER WALL FOOTINGS EXTERIOR EXPOSED PIERS AND WALLS INTERIOR PIERS AND WALLS SLAB ON GRADE, INTERIOR SLAB ON GRADE, EXTERIOR NOTES: 1. STRENGTH REFERS TO D 2. "NW" REFERS TO NOR UNIT WEIGHT OF APPR	4000 4000 4000 4000 4000 4000 4000 REQUIRED CYL MAL WEIGHT (20XIMATELY 14	NW NW NW NW NW LINDER COMPRESS CONCRETE (W/ LIN 45 PCF.	3-5 3-5 3-5 3-5 2-4 2-4 IVE STRENGTH AT 2 MESTONE AGG.) H/	NA 3-6 3-6 NA NA 3-6 28 DAYS. AVING AIR DRY	7.0 7.1.	STR STE DR
EC(S) ECD FF R RUCT M PT(S) MP K G	3.0 3.1.	GEOTECHNICAL NO GEOTECHNICAL RE CONSTRUCTION M/ ADDITION (JOB NO CONTRACT SHALL O REQUIREMENTS WIT	BASIC STRUCTURAL SYSTEM & DESIGN VALUES: RESPONSE MODIFICATION COEFF., R OVERSTRENGTH FACTOR, Ω0 DEFLECTION AMPLIFICATION FACTOR, Cd SEISMIC RESPONSE COEFF., Cs ANALYSIS PROCEDURE DESIGN BASE SHEAR DESIGN BASE SHEAR DTES: PORT: FOUNDATION DESIGN IS BASED ON A GE ATERIALS LABORATORY, INC. ENTITLED DYER CO 072302), DATED JULY 2023. THE GENERAL CON DBTAIN A COPY OF THE GEOTECHNICAL REPOR HIN THE REPORT.	BY PEMB MFR BY PEMB MFR COTECHNICAL REPORT BY OUNTY JAIL – CLASSROOM NTRACTOR WHO IS AWARDED THIS RT AND SHALL FOLLOW ALL		INTERIOR FOOTINGS EXTERIOR/PERIMETER WALL FOOTINGS EXTERIOR EXPOSED PIERS AND WALLS INTERIOR PIERS AND WALLS SLAB ON GRADE, INTERIOR SLAB ON GRADE, EXTERIOR NOTES: 1. STRENGTH REFERS TO D 2. "NW" REFERS TO NOR UNIT WEIGHT OF APPR 3. MAXIMUM WATER-CEI NO CASE SHALL WATE	4000 4000 4000 4000 4000 4000 4000 800 8	NW NW NW NW NW LINDER COMPRESS CONCRETE (W/ LIN 45 PCF. CAN BE FOUND IN ATIO EXCEED A.C.I.	3-5 3-5 3-5 3-5 2-4 2-4 IVE STRENGTH AT 2 MESTONE AGG.) HA SPECIFICATION SE CODE MAXIMUM	NA 3-6 3-6 NA NA 3-6 NA 3-6 28 DAYS. AVING AIR DRY ECTION 03010. IN S.	7.0 7.1.	STR STE DR
EC(S) ECD FF R RUCT M PT(S) K G B X B F	3.0 3.1. 3.2.	GEOTECHNICAL NC GEOTECHNICAL RE CONSTRUCTION M/ ADDITION (JOB NO CONTRACT SHALL (REQUIREMENTS WIT GEOTECHNICAL DE	BASIC STRUCTURAL SYSTEM & DESIGN VALUES: RESPONSE MODIFICATION COEFF., R OVERSTRENGTH FACTOR, Ω0 DEFLECTION AMPLIFICATION FACTOR, Cd SEISMIC RESPONSE COEFF., Cs ANALYSIS PROCEDURE DESIGN BASE SHEAR DESIGN BASE SHEAR DTES: PORT: FOUNDATION DESIGN IS BASED ON A GE ATERIALS LABORATORY, INC. ENTITLED DYER CO 0.072302), DATED JULY 2023. THE GENERAL CON DBTAIN A COPY OF THE GEOTECHNICAL REPOR HIN THE REPORT. ESIGN VALUES: CONDITION	EBY PEMB MFR BY PEMB MFR COTECHNICAL REPORT BY OUNTY JAIL – CLASSROOM NTRACTOR WHO IS AWARDED THIS RT AND SHALL FOLLOW ALL DESIGN VALUES	5.2.	INTERIOR FOOTINGS EXTERIOR/PERIMETER WALL FOOTINGS EXTERIOR EXPOSED PIERS AND WALLS INTERIOR PIERS AND WALLS SLAB ON GRADE, INTERIOR SLAB ON GRADE, EXTERIOR NOTES: 1. STRENGTH REFERS TO D 2. "NW" REFERS TO NOR UNIT WEIGHT OF APPR 3. MAXIMUM WATER-CEN NO CASE SHALL WATE REINFORCING STEEL SHALL BE A CLASS "B" TENSION LAP. PLACE	4000 4000 4000 4000 4000 4000 4000 400	NW NW NW NW NW NW NW LINDER COMPRESS CONCRETE (W/ LIN 45 PCF. CAN BE FOUND IN 10 EXCEED A.C.I. RADE 60. LAP REINF ETAILING SHALL BE	3-5 3-5 3-5 3-5 2-4 2-4 2-4 VE STRENGTH AT 2 AESTONE AGG.) HA SPECIFICATION SE CODE MAXIMUM CORCING BARS AS IN ACCORDANC	NA 3-6 3-6 NA NA NA 3-6 28 DAYS. AVING AIR DRY ECTION 03010. IN S. PER A.C.I. 318, E WITH A.C.I. 315.	7.0 7.1. 7.2.	STR STE DR
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FOOTINGS. 3.7. ALL EXTERIOR FOOTINGS SHALL BE PLACED AT A MINIMUM OF 2'-0" BELOW FINISHED EXTERIOR GRADE. 3.8. FOLLOWING INSPECTION OF BUILDING PAD SUBGRADES, THE CONCRETE SLAB SHALL BE PLACED ON A TEXTURED POLYETHYLENE VAPOR BARRIER AT LEAST 10 MILS THICK.

3.9. ALL FOUNDATION BEARING SURFACES MUST BE REVIEWED BY THE GEOTECHNICAL ENGINEER PRIOR TO PLACING REINFORCING STEEL AND CONCRETE TO ENSURE THEIR COMPLIANCE WITH THE GEOTECHNICAL REPORT STATED ABOVE.

INCH AND A DIFFERENTIAL SETTLEMENT OF LESS THAN % INCH ARE ANTICIPATED FOR SHALLOW

A LAYER OF COMPACTED LIMESTONE BASE (NO. 57 SIZED STONE). THIS LAYER SHALL BE TOPPED WITH

THE METAL BUILDING SHALL BE DESIGNED AND FABRICATED ACCORDING TO AISC, MBMA, AND AISI LATEST SPECIFICATIONS AND AS NOTED ON THIS SHEET AND IN THE SPECIFICATIONS. DESIGN PRIMARY AND SECONDARY MEMBERS AND COVERING FOR APPLICABLE LOADS AND

COMBINATIONS OF LOADS IN ACCORDANCE WITH METAL BUILDING MANUFACTURER'S ASSOCIATION (MBMA) "RECOMMENDED DESIGN PRACTICES MANUAL " AND 2012 INTERNATIONAL BUILDING CODE.

6.1.1 FOR WELDED CONNECTIONS, COMPLY WITH AWS "STRUCTURAL WELDING CODE." 6.1.2 FABRICATION CRITERIA: PROVIDE PREFABRICATED METAL BUILDINGS AS PRODUCED BY A MANUFACTURER WHO IS REGULARLY ENGAGED IN FABRICATION AND ERECTION OF PRE-ENGINEERED METAL STRUCTURES OF TYPE AND QUALITY INDICATED. 6.1.3 DESIGN SIZES OF PRE-FABRICATED COMPONENTS AND NECESSARY FIELD CONNECTIONS REQUIRED FOR ERECTION TO PERMIT EASY ASSEMBLY AND DISASSEMBLY. FABRICATE COMPONENTS IN SUCH MANNER THAT ONCE ASSEMBLED THEY MAY BE DISASSEMBLED, REPACKAGED AND REASSEMBLED WITH A MINIMUM AMOUNT OF LABOR AND MAXIMUM

SALVAGABILITY. 6.1.4 CLEARLY AND LEGIBLY MARK EACH PIECE AND PART OF ASSEMBLY TO CORRESPOND WITH PREVIOUSLY PREPARED ERECTION DRAWINGS, DIAGRAMS, AND INSTRUCTION MANUALS.

THE BASIC LOADS FOR THE DESIGN OF THE METAL BUILDING SHALL BE: 6.2.1 ALL DEAD LOADS FROM ALL TRADES SHOWN ON CONSTRUCTION DOCUMENTS (ARCH'L,

MECH'L, ELEC'L, PLUMBING, FIRE PROTECTIONS, ETC.) 6.2.2 REDUCIBLE ROOF LIVE LOAD AS GIVEN IN NOTE 2.2.2, THIS SHEET

6.2.3 10 PSF COLLATERAL LOAD, UNO.

6.2.4 SNOW LOAD AS GIVEN IN NOTE 2.2.3, THIS SHEET, AS WELL AS ANY RAIN OR SNOW SURCHARGE AS REQUIRED BY ASCE7.

6.2.5 2012 IBC WIND LOADS (OR EQUIVALENT ASCE 7 LOADS) BASED ON THE INFORMATION GIVEN IN NOTE 2.3.1, THIS SHEET AND FOLLOWING:

6.2.5.1 EXPOSURE CLASSIFICATION C

6.2.5.2 INTERNAL PRESSURE COEFFICIENT CLASSIFICATION: PER M.B.M. 6.2.6 SEISMIC LOADS AS REQUIRED BY THE BUILDING CODE OF JURISDICTION BASED ON THE INFORMATION GIVEN IN NOTE 2.3.2, THIS SHEET, INCLUDING ALL APPLICABLE AISC SEISMIC

PROVISIONS. 6.2.7 THE METAL BUILDING'S RIGID FRAMES SHALL BE DESIGNED TO LIMIT THE LATERAL DEFLECTION AT THE BUILDING EAVE FOR THE REQUIRED WIND LOAD, AT 10-YEAR MRI, TO H/100 FOR WALLS SUPPORTING METAL SHEET PANELS. WHERE WALLS SUPPORT FULL OR PARTIAL HEIGHT BRICK OR CMU VENEER, THE DRIFT LIMIT SHALL BE RESTRICTED TO H/600. FOR REINFORCED, EXTERIOR CMU WALL, THE DRIFT LIMIT SHALL BE RESTRICTED TO H/200. ALLOWABLE SEISMIC DRIFT SHALL BE PER THE BUILDING CODE OF JURISDICTION.

6.2.8 DESIGN EACH MEMBER TO WITHSTAND STRESSES RESULTING FROM COMBINATIONS OF LOADS THAT PRODUCE THE MAXIMUM PERCENTAGE OF ACTUAL TO ALLOWABLE STRESS IN THAT MEMBER, AS PRESCRIBED IN MBMA "RECOMMENDED DESIGN PRACTICES MANUAL." PRE-ENGINEERED BUILDING SHALL BE DESIGNED FOR ALL ROOF TOP AND WALL MOUNTED EQUIPMENT EITHER SUPPORTED FROM OR HANGING FROM STRUCTURE (WHETHER SHOWN ON

LOCATION AND WEIGHTS. PROVIDE APPROPRIATE FLASHING AT ALL ROOF AND WALL PENETRATIONS. ALL ROOF PURLINS SHALL BE DESIGNED FOR DEAD LOAD, ROOF LIVE LOAD, & COLLATERAL LOAD, AS

THE METAL BUILDING FRAMES SHALL BE DESIGNED IN A MANNER THAT PREVENTS MOMENTS BEING TRANSFERRED TO THE FOUNDATION (I.E. PINNED CONDITION.) PRIMARY FRAMING MEMBERS SHALL BE FACTORY WELDED BUILT-UP "I" SHAPED RIGID FRAMES, SHOP

ENDWALL COLUMNS SHALL BE HOT ROLLED "I" BEAMS OR FACTORY WELDED "I" SHAPE, SHOP PRIMED. WALL BRACING SHALL BE PORTAL FRAMES UNO. (REFER TO PLANS) AND ROOF ROD BRACING SHALL BE MIN, 1/2" DIA. THREADED STEEL RODS WITH TURN BUCKLES (NO CABLE BRACING ALLOWED.)

ROOFING AND SIDING: 6.9.1 REFER TO ARCHITECTURAL SPECIFICATIONS FOR ROOF AND WALL PANEL REQUIREMENTS. SECONDARY FRAMING I.E. PURLINS, GIRTS, EAVE STRUTS, FLANGE & SAG BRACING SHALL BE A MIN. 18 GA. ROLLED FORMED SECTIONS. (SHOP PAINTED) BASE CHANNEL, ALL ANGLE, PURLINS AND WALL GIRTS SHALL BE FURNISHED WITH SAG BRACING.

CONTRACTOR TO FURNISH ALL TRIM, FLASHING, CLOSURE STRIPS, ETC. @ WALL AND ROOF PANELS. FURNISH EXTERIOR BASE TRIM AT BOTTOM OF EXTERIOR WALL PANELS AROUND PERIMETER OF BUILDING IN ADDITION TO BASE GIRT.

THE STRUCTURE SHALL BE BRACED AS REQUIRED DURING ERECTION AND UNTIL ALL COMPONENTS

THE GENERAL CONTRACTOR TO BE RESPONSIBLE FOR FIELD CLEANING ALL PRE-ENGINEERED BUILDING STEEL AND TO TOUCH-UP SHOP PRIMER.

A COMPLETE DESIGN ANALYSIS SHOWING ALL CALCULATIONS FOR THE RIGID FRAMES, GIRTS, PURLINS, DOOR FRAMING, AND X-BRACING FOR WIND AND SEISMIC LOADS AND A LAYOUT OF ANCHOR AND OTHER EMBEDDED ITEMS SHALL BE SUBMITTED FOR APPROVAL WITH THE SHOP DRAWINGS. SHOP DRAWINGS SHALL INCLUDE DETAILS OF ALL MAIN MEMBERS, TYPICAL CONNECTIONS (SHOWING BOLT HOLES AND WELDS), AND ERECTION DRAWINGS. REFER TO SPECIFICATIONS FOR SUBMITTAL REQUIREMENTS. SUBMITTALS SHALL BE SIGNED AND SEALED BY A PROFESSIONAL ENGINEER REGISTERED IN THE STATE OF TENNESSEE.

STRUCTURAL STEEL NOTES:

STEEL SHALL CONFORM TO THE FOLLOWING SPECIFICATIONS UNLESS NOTED OTHERWISE ON THE

PLATES, ANGLES AND BARS	ASTM A36
ROLLED SHAPES (EXCEPT ANGLES)	ASTM A992, GR. 50 KSI
STEEL PIPE	ASTM A53, TYPE E OR S, GR. C
STEEL TUBE	ASTM A500, GR. C
THRU BOLTS (3/4" Ø MIN., US MANUF.)	ASTM A325N, TYPE 1
HIGH STRENGTH HEAVY HEX NUTS (PLAIN)	ASTM A563, GR. C
HIGH STRENGTH HEAVY HEX NUTS (GALV)	ASTM A563, GRADE DH
HARDENED STEEL WASHERS (PLAIN)	ASTM F436, TYPE 1
TENSION INDICATING WASHERS	ASTM F959
ANCHOR BOLTS	ASTM F1554 w/ S1 WELD ABILITY (MIN. GR. 36)

ASTM F1554 w/ S1 WELD ABILITY (MIN. GR. 36) ALL STRUCTURAL STEEL AND ANCHORS EXPOSED TO WEATHER SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A123 OR A153 AS APPLICABLE.

WELDED CONNECTIONS: E70XX ELECTRODES, MINIMUM SIZE FILLET WELD 3/16".

ALL WELDING SHALL BE PERFORMED BY CERTIFIED WELDERS IN ACCORDANCE WITH THE STRUCTURAL WELDING CODE, AWS D1.1

UNLESS NOTED OTHERWISE, FACE BRICK SHALL BE SUPPORTED ACROSS OPENINGS (WINDOWS, MECHANICAL OPENINGS, ETC.) w/ A GALVANIZED LOOSE ANGLE LINTEL. REQUIRED LINTEL SHALL BE L4x4x3/8 FOR OPENINGS LESS THAN 6'-0" AND L6x4x3/8 (LLV) FOR OPENINGS UP TO 7'-0" CLEAR. CONTRACTOR SHALL CONSULT W/ ENGINEER FOR ALL OPENINGS EXCEEDING 7'-0" CLEAR. 8 INCHES OF BEARING SHALL BE PROVIDED ON EACH SIDE OF OPENING. PROVIDE 1/2 INCH EXPANSION JOINT (WITH SEALANT) AT EACH END OF LAL, TYP. UNO.

F WELD SIZE IS NOT SHOWN, MINIMUM WELD SIZE PER AWS AND AISC STANDARDS SHALL BE USED FOR THICKER PART JOINED. ALL BEAM TO STEEL TUBE COLUMN CONNECTIONS SHALL BE SINGLE PLATE CONNECTIONS AS SHOWN

ON S1 SERIES SHEETS. ALL BEAM TO BEAM AND BEAM TO WIDE FLANGE COLUMN CONNECTIONS SHALL BE TYPE II DOUBLE ANGLE CONNECTIONS DESIGNED FOR ½ OF THE TOTAL UNIFORM LOAD TABLES IN PART 4 OF THE AISC MANUAL OF STEEL CONSTRUCTION FOR THE GIVEN BEAM SIZE, GRADE AND SPAN. THE FOLLOWING TABLE GIVES THE MINIMUM NUMBER OF 3/4" Ø A325N BOLTS TO BE USED IN ALL TYPE II CONSTRUCTION CONNECTIONS WITH 3/8" ANGLES.

MIN. # OF BOLTS			
2			
2			
2			
3			
3			
4			
4			
5			
6			
6			
7			
7			
8			

1

THE FOUNDATION DESIGN, INCLUDING FOOTINGS, PIERS, AND ANCHOR RODS ARE BASED ON PRELIMINARY PRE-ENGINEERED METAL BUILDING DRAWINGS & REACTIONS BY REED'S METALS, LLC DATED 6/19/2023. THE CONTRACTOR SHALL BRING ANY DISCREPANCIES BETWEEN THE PEMB DRAWINGS & INFORMATION PROVIDED HEREIN TO THE IMMEDIATE ATTENTION OF THE EOR PRIOR TO BEGINNING WORK.

CONTRACTOR NOTE:

FOOTING UNDERCUT: CONTRACTOR TO INCLUDE AN ALLOWANCE & UNIT PRICE FOR 20 CY OF FOOTING UNDERCUT & REPLACEMENT. REFER TO GENERAL NOTES FOR UNDERCUT REQUIREMENTS AND INFORMATION.

- MAINTAINED. 8. VERIFY ALL EXISTING CONDITIONS PRIOR TO
- CONSTRUCTION. HVAC LAYOUT DETERMINED FROM SITE OBSERVATIONS AND AS BUILT DRAWINGS. CONTRACTOR SHALL NOTIFY ENGINEER SHOULD EXISTING CONDITIONS DIFFER FROM THESE DRAWINGS.

	LEGEND
X	SUPPLY AIR DIFFUSER
Ø	RETURN AIR GRILLE
Ø	EXHAUST/TRANSFER AIR GRILLE
©	THERMOSTAT
×*****	TURNING VANE
*	FIRE/SMOKE DAMPER
SA	SUPPLY AIR
RA	RETURN AIR
FA	FRESH AIR/OUTSIDE AIR
EA	EXHAUST AIR
	LAY-IN CEILING SIZE (24"x24")
eck size —	RAG - RETURN AIR GRILLE
	(8)(24)(RAG) EAG - EXHAUST AIR GRILLE
	(XXXCFM) SWG - SIDEWALL GRILLE TAG - TRANSFER AIR CRILLE
IR FLOW RA	mig
OTE: OUND BRAN	CH RUNOUT SIZE SAME SIZE AS DIFFUSER
eur unles	s otherwise specified on orawing.

MECHANICAL NOTES: ALL WORK SHALL BE EXECUTED AND INSPECTED IN ACCORDANCE WITH ALL LOCAL AND STATE CODES, LAWS, ORDINANCES, RULES AND REGULATIONS APPLICABLE TO THE PARTICULAR CLASS OF WORK. IF, TO THE KNOWLEDGE OF THE CONTRACTOR, THE DRAWINGS AND SPECIFICATIONS ARE IN CONFLICT WITH THE ABOVE, HE SHALL PROMPTLY NOTIFY THE ENGINEER IN WRITING SO THAT ANY NECESSARY CHANGES CAN BE PROVIDED FOR IN HIS CONTRACT. IF THE CONTRACTOR PERFORMS ANY WORK WITHOUT NOTICE AS REQUIRED, HE SHALL BEAR ALL COSTS OF CORRECTIVE ACTION. THE CONTRACTOR SHALL INCLUDE IN HIS QUOTATION ALL APPLICABLE SERVICE CHARGES, FEES, PERMITS, ROYALTIES, AND OTHER SIMILAR COSTS IN CONNECTION WITH THE WORK. OBTAIN PERMITS, AND REQUEST INSPECTIONS FROM AUTHORITY HAVING JURISDICTION. INSTALL WORK IN LOCATIONS SHOWN ON DRAWINGS, UNLESS PREVENTED BY PROJECT CONDITIONS. FOR PURPOSES OF CLEARNESS AND LEGIBILITY, DRAWINGS ARE ESSENTIALLY DIAGRAMMATIC, AND ALTHOUGH SIZE AND LOCATION OF EQUIPMENT ARE DRAWN TO SCALE WHENEVER POSSIBLE, THE CONTRACTOR SHALL REVIEW THE STRUCTURAL, ELECTRICAL, ARCHITECTURAL, FIRE PROTECTIONS, ETC. DRAWINGS AND DETERMINE AREAS OF INTERFERENCE. THE CONTRACTOR SHALL NOTIFY THE ARCHITECT/ENGINEER OF INTERFERENCE'S PRIOR TO FABRICATION OF DUCTWORK OR PIPING. THE DRAWINGS INDICATE REQUIRED SIZE AND POINTS OF TERMINATION OF PIPES AND DUCTS, AND SUGGEST PROPER ROUTES OF PIPE TO CONFORM TO STRUCTURE, AVOID OBSTRUCTIONS AND PRESERVE CLEARANCES. HOWEVER, IT IS NOT INTENDED THAT DRAWINGS INDICATE ALL NECESSARY OFFSETS, AND IT SHALL BE THE WORK OF THIS SECTION TO INSTALL PIPING AND DUCTS IN SUCH A MANNER AS TO CONFORM TO STRUCTURE, AVOID ALL OBSTRUCTIONS, PRESERVE HEADROOM AND KEEP OPENINGS AND PASSAGEWAYS CLEAR WITHOUT FURTHER INSTRUCTION OR COST TO THE OWNER. VERIFY ALL EXISTING CONDITIONS PRIOR TO CONSTRUCTION. EXISTING LAYOUT, IF SHOWN, WAS DETERMINED FROM SITE OBSERVATIONS AND AS BUILT DRAWINGS. CONTRACTOR SHALL NOTIFY ENGINEER SHOULD EXISTING CONDITIONS DIFFER FROM THESE DRAWINGS. CONTRACTOR SHALL GUARANTEE ALL WORK PERFORMED UNDER THIS CONTRACT TO BE FREE FROM DEFECTS IN MATERIALS AND WORKMANSHIP FOR A PERIOD OF ONE YEAR TROM DATE OF CERTIFICATE OF SUBSTANTIAL COMPLETION. THE MECHANICAL CONTRACTOR SHALL PREPARE SUBMITTALS ON ALL EQUIPMENT AND MATERIALS APPLICABLE TO THIS PROJECT AND SUBMIT TO ENGINEER FOR REVIEW PRIOR TO PROCUREMENT, FABRICATION OR ANY CONSTRUCTION. SUBMITTALS MAY BE MAILED VIA APPROPRIATE CHANNELS OR SUBMITTED IN PDF FORM VIA EMAIL. PARTIAL SUBMITTALS WILL NOT BE REVIEWED. SUBMITTALS SHALL BE PROJECT SPECIFIC INDICATING THE INTENDED MODEL NUMBERS, MATERIALS, AND EQUIPMENT TAGS. SHOULD A PRODUCT SUBSTITUTION BE PROVIDED: a. THE PROPOSED SUBSTITUTION SHALL BE FULLY INVESTIGATED AND DETERMINED TO BE EQUAL OR SUPERIOR IN ALL RESPECTS TO THE SPECIFIED PRODUCT. b. THE PROPOSED SUBSTITUTION SHALL HAVE THE SAME WARRANTY FURNISHED FOR THE PROPOSED SUBSTITUTION AS FOR THE SPECIFIED PRODUCT. C. THE PROPOSED SUBSTITUTION SHALL HAVE THE SAME MAINTENANCE SERVICE AND AVAILABILITY OF SPARE PARTS. d. THE PROPOSED SUBSTITUTION SHALL NOT AFFECT DIMENSIONS AND/OR FUNCTIONAL REQUIRED CLEARANCES PER THE MANUFACTURER OR THE LATEST APPLICABLE CODES. e. THE PROPOSED SUBSTITUTION SHALL HAVE NO ADVERSE EFFECT ON OTHER TRADES AND SHALL NOT AFFECT AND/OR DELAY THE PROGRESS SCHEDULE. f. THE CONTRACTOR SHALL BE RESPONSIBLE TO PAY FOR ANY CHANGES TO BUILDING DESIGN, INCLUDING ARCHITECTURAL/ENGINEERING DESIGN, DETAILING AND CONSTRUCTION COST CAUSED BY THE SUBSTITUTION AND TAKE SOLE RESPONSIBILITY FOR SUBSTITUTIONS THAT ARE DEEMED "VALUE ENGINEERING" AND DETERMINED NOT EQUAL OR superior to the product specified. MOTORS FOR ALL MECHANICAL EQUIPMENT SHALL BE FURNISHED BY SUPPLIERS OF SUCH EQUIPMENT AND SHALL BE THE TYPE THAT HAS CHARACTERISTICS SUITABLE FOR CONTINUOUS OPERATING CONDITIONS. TRANSPORT AND HANDLE PRODUCTS IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS. 10. STORE AND PROTECT PRODUCTS IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS, WITH SEALS AND LABELS INTACT AND LEGIBLE. 11. ALL MECHANICAL EQUIPMENT, AS APPLICABLE, SHALL HAVE U.L. LISTING OR EQUIVALENT. VERIFY THAT EACH PIECE OF EQUIPMENT OR SYSTEM HAS BEEN CHECKED FOR PROPER LUBRICATION, DRIVE ROTATION, BELT TENSION, CONTROL SEQUENCE, OR FOR OTHER CONDITIONS WHICH MAY CAUSE DAMAGE. 12. DEMONSTRATE OPERATION AND MAINTENANCE OF PRODUCTS TO OWNER'S PERSONNEL ONE WEEK PRIOR TO DATE OF FINAL INSPECTION 13. EXECUTE FINAL CLEANING PRIOR TO FINAL PROJECT ASSESSMENT. 14. SEISMICALLY RESTRAIN HVAC EQUIPMENT, GAS PIPING AND HYDRONIC PIPING AS REQUIRED BY LOCAL CODE. PROVIDE SUPPORT AND EQUIPMENT REQUIRED TO CONTROL EXPANSION AND CONTRACTION OF PIPING. PROVIDE LOOPS, PIPE OFFSETS, AND SWING JOINTS, OR EXPANSION JOINTS WHERE REQUIRED. 15. ENTRE HVAC SYSTEM AND HYDRONIC SYSTEM (AS APPLICABLE) SHALL BE BALANCED BY AN INDEPENDENT CERTIFIED TEST & BALANCE CONTRACTOR. ALL AIR FLOW RATES SHALL BE WITHIN 5% OF SPECIFIED FLOW RATE. PROVIDE CERTIFIED TEST & BALANCE REPORT AT END OF PROJECT. 16. DISPOSE OF CONDENSATE IN ACCORDANCE WITH LOCAL CODE REQUIREMENTS. PROVIDE TRAP IN CONDENSATE DRAIN LINE AT EACH COIL OR 90+ FURNACE IN ACCORDANCE WITH PUBLISHED MANUFACTURER'S INSTRUCTIONS. EACH TRAP SHALL BE PROVIDED WITH A TEE TO ALLOW FOR CLEANING. CONDENSATE PIPING SHALL BE SCH 40 PVC UNLESS NOTED OTHERWISE OR PROHIBITED BY CODES. INSULATE CONDENSATE DRAIN PIPING, SLOPE TO DRAIN, AND TERMINATE IN ACCORDANCE WITH CODE OR AS SHOWN ON THESE DRAWNGS. 7. PROVIDE NON-CONDUCTING DIELECTRIC CONNECTIONS WHEREVER JOINTING DISSIMILAR METALS. 18. ALL DUCTWORK SHALL BE FABRICATED AND INSTALLED IN ACCORDANCE WITH THE FOURTH EDITION "SMACNA HVAC DUCT CONSTRUCTION STANDARDS -- METAL AND FLEXIBLE", AND AS INDICATED. PROVIDE RADIUS ELBOW OR TURNING VANES IN ALL 90" ELBOWS. PROVIDE DUCT MATERIAL, GAGES, REINFORCING, AND SEALING FOR OPERATING PRESSURES INDICATED. DUCTWORK SHALL BE FABRICATED FROM ASTM A525 AND ASTM A527 GALVANIZED STEEL SHEET, LOCK-FORMING QUALITY, HAVING G90 ZINC COATING OF IN CONFORMANCE WITH ASTM A90. ALL DUCTS SHALL BE GALVANIZED STEEL UNLESS OTHERWISE NOTED ON DRAWINGS. DUCTBOARD WILL NOT BE ACCEPTED. 19. PROVIDE TEMPORARY PROTECTION FOR EQUIPMENT DURING CONSTRUCTION TO PREVENT DAMAGE TO EQUIPMENT AND COILS. PROVIDE TEMPORARY FILTERS AT EACH RETURN AIR INLET DURING CONSTRUCTION. PROVIDE AND INSTALL A NEW, CLEAN SET OF FILTERS FOR EACH SYSTEM AT PROJECT COMPLETION. 20. FLEXIBLE DUCTWORK SHALL BE EQUIVALENT TO THERMAFLEX WITH R-6.0 MINIMUM, R-8.0 IF IN ATTIC SPACE, FIBERGLASS INSULATION AND VAPOR BARRIER. FLEXIBLE DUCTWORK SHALL BE U.L. LISTED AND APPROVED. 21. SEAL ALL LONGITUDINAL AND TRANSVERSE SEAMS BEFORE APPLYING INSULATION. SEALANT SHALL BE NON-HARDENING, WATER RESISTANT, FIRE RESISTIVE, COMPATIBLE WITH MATING MATERIALS, LIQUID USED ALONE OR WITH TAPE, OR HEAVY MASTIC. 22. CLEARANCES: MAINTAIN MINIMUM 30"X30" WORKING CLEARANCE ON THE CONTROL SIDE OF ALL MECHANICAL EQUIPMENT. LOCATE DUCTS WITH SUFFICIENT SPACE AROUND EQUIPMENT TO ALLOW NORMAL OPERATING AND MAINTENANCE ACTIVITIES. 23. PROVIDE CANVAS, FLAME RETARDANT DUCT CONNECTORS AT ALL CONNECTIONS OF FANS TO DUCTWORK. 24. ALL LOW VOLTAGE CONTROL WRING SHALL BE PROVIDED BY MECHANICAL CONTRACTOR. CONTROL WRING SHALL BE PROVIDED IN ACCORDANCE WITH ALL FEDERAL, STATE AND LOCAL CODES. CONTROL WRING CONCEALED IN WALLS, LOCATED OUTDOORS, OR INSTALLED IN RETURN AIR PLENUM SHALL BE INSTALLED IN CONDUIT. CONDUIT TO BE PROVIDED AND INSTALLED BY MECHANICAL CONTRACTOR. 25. ROUTE REFRIGERANT LINES FROM OUTDOOR UNITS TO COOLING COIL. SIZE PER MANUFACTURER'S RECOMMENDATIONS AND PROVIDE ADDITIONAL CHARGE AS REQUIRED. REFRIGERANT SUCTION PIPES LESS THAN 1 1/2" IN SIZE TO RECEIVE 1/2" ARMAFLEX INSULATION AND ALL LIQUID LINES INSTALLED IN NON-CONDITIONED SPACES SHALL RECEIVE 1" INSULATION. ALL EXPOSED REFRIGERANT PIPING INSTALLED OUTDOORS SHALL BE RIGID COPPER. ROUTE ALL REFRIGERANT PIPING PLUMB AND SQUARE WITH THE BUILDING AS POSSIBLE. EXTERIOR PIPING SHALL BE INSTALLED ON UNISTRUT AND SECURED WITH UNISTRUT CLAMPS. UNISTRUT TO BE ANCHORED TO CONCRETE 26. ROUND DUCT BRANCH SIZE SHALL BE SAME AS NECK SIZE SPECIFIED FOR DIFFUSER, UNLESS OTHERWISE NOTED ON DRAWINGS. 27. ALL EXTERIOR WALL LOUVERS USED FOR MECHANICAL EXHAUST, MECHANICAL FRESH AIR INTAKE, OR MECHANICAL COMBUSTION AIR SHALL BE EXTRUDED ALUMINUM, WITH 1/4" INSECT SCREEN. COORDINATE COLOR WITH ARCHITECT. 28. VERIFY FLOOR PLAN AND WALL/FLOOR/CEILING RATINGS WITH ARCHITECTURAL PLANS. PROVIDE RATED PENETRATIONS AT EACH INSTANCE WHERE MECHANICAL INSTALLATION PENETRATES A RATED ASSEMBLY. PENETRATIONS SHALL BE PER DETAILS ON THE DRAWINGS OR SOME OTHER U.L. LISTED DESIGN 29. NATURAL GAS PIPING, IF SHOWN ON THESE DRAWINGS, SHALL BE SCH. 40 BLACK STEEL ABOVE GROUND WITH EITHER WELDED OR THREADED FITTINGS. PAINT PIPING LOCATED OUTDOORS. ALL NATURAL GAS PIPING PERMANENTLY CONCEALED IN WALLS, CHASES, ETC. SHALL HAVE WELDED CONNECTIONS. IF APPROVED BY THE LOCAL GAS UTILITY, PIPE BELOW GRADE MAY BE DRISCOPIPE 6500, OR APPROVED POLYETHYLENE TYPE, INSTALLED TO CONFORM TO MANUFACTURER'S RECOMMENDATIONS AND LOCAL UTILITY REQUIREMENTS. PROVIDE YELLOW COPPER TRACER WIRE OR OTHER APPROVED CONDUCTOR INSTALLED ADJACENT TO UNDERGROUND NONMETALLIC PIPING. ACCESS SHALL BE PROVIDED TO THE TRACER WIRE OR THE TRACER WIRE SHALL TERMINATE ABOVE GROUND AT EACH END OF THE NONMETALLIC PIPING. THE TRACER WIRE SHALL NOT BE LESS THAN 18 AWG AND THE INSULATION TYPE SHALL BE SUITABLE FOR DIRECT BURIAL. ALL NEW OR MODIFIED NATURAL GAS SYSTEMS SHALL BE TESTED AND PURGED PER IFCC CHAPTER 4 SECTION 406. 30. UNLESS OTHERWISE NOTED ON DRAWINGS, AIR DISTRIBUTION SHALL BE AS FOLLOWS OR EQUAL: CEILING SUPPLY, LAY-IN CEILINGS - NAILOR 6500 SERIES, TYPE L FRAME, FULLY LOUVERED FACE, NO FILLER PANEL, FLUSH WITH CEILING, LESS DAMPER. SIDEWALL OR DRYWALL CEILING SUPPLY - NAILOR 61D SERIES, DOUBLE DEFLECTION, WITH DAMPER AND PLASTER RING (AS APPLICABLE). CEILING RETURN AND EXHAUST, LAY-IN CEILINGS - NAILOR 4360 SERIES, FLUSH FACE, TYPE L FRAME. SIDEWALL OR DRYWALL CEILING RETURN - NAILOR 51FH-HD WITH PLASTER RING. LINEAR BAR SUPPLY GRILLES - NAILOR 49-240, LESS DAMPER, WITH PLASTER RING. INSTALL AIR DISTRIBUTION SYMMETRICALLY WHERE POSSIBLE. ALL AIR DISTRIBUTION MOUNTING FRAMES SHALL MATCH CEILING TYPE. VERIFY CEILING AND COLORS WITH ARCHITECTURAL DRAWINGS. ALL AIR DISTRIBUTION SHALL HAVE POWDER COAT FINISH. GRILLES INSTALLED IN SIDEWALL OF DUCT SHALL MATCH DUCT FINISH AND COLOR. PROVIDE PREINSULATED SUPPLY GRILLE. WHERE ADAPTERS ARE USED, PAINT TO MATCH GRILLE. 31. DUCT PENETRATIONS THROUGH RATED WALLS DO NOT REQUIRE FIRE DAMPERS PROVIDED THE FOLLOWING MINIMUM REQUIREMENTS ARE MET: FIRE PARTITIONS: a. THE DUCT DOES NOT EXCEED 100 SQ. INCHES. b. THE DUCT IS OF 0.0217 INCH MINIMUM STEEL. c. THE DUCT SHALL NOT HAVE OPENINGS THAT COMMUNICATE THE CORRIDOR WITH ADJACENT SPACES OR ROOMS. d. THE DUCT IS INSTALLED ABOVE A CEILING. THE DUCT SHALL NOT TERMINATE AT A WALL REGISTER IN THE FIRE RESISTANCE RATED WALL. 1. A MIN. 12" LONG BY 0.06" THICK STEEL SLEEVE SHALL BE CENTERED IN EACH DUCT OPENING. THE SLEEVE SHALL BE SECURED TO BOTH SIDES OF THE WALL AND ALL FOUR SIDES OF THE SLEEVE WITH MIN. 1 1/2" X 1 1/2" X 0.06" STEEL RETAINING ANGLES. SECURE RETAINING ANGLES TO THE SLEEVE AND WALL WITH NO 10 SCREWS. FILL ANNULAR SPACE BETWEEN THE WALL AND SLEEVE WITH MINERAL WOOL. FIRE BARRIERS: a. WALL IS RATED 1 HR OR LESS b. WALLS ARE IN AREAS OTHER THAN GROUP H c. BUILDING IS EQUIPPED THROUGHOUT WITH AUTOMATIC FIRE PROTECTION SYSTEM d. THE DUCT IS OF 26GA (0.0217 INCH) STEEL MINIMUM. e. DUCT IS CONTINUOUS FROM THE AIR HANDLER TO THE AIR OUTLET. 32. UNLESS SHOWN OTHERWISE ON DRAWINGS, FRESH AIR DUCTWORK SHALL BE ROUND GALVANIZED DUCT WITH FOIL-BACKED INSULATION, R-8 MINIMUM. EXHAUST DUCTS DO NOT REQUIRE INSULATION. PROVIDE ACCESSIBLE BALANCING DAMPER. SIZE DUCT AS FOLLOWS: 1-100 CFM - 6", 101-200 CFM - 8", 201-400 CFM - 10". SEE NOTE 27 FOR INTAKE LOUVER REQUIREMENTS. EACH FRESH AIR INTAKE DUCT SHALL BE PROVIDED WITH AN ACCESSIBLE BALANCING DAMPER. 33. CONDENSATE DRAINS, ELECTRICAL CONDUIT AND NATURAL GAS PIPING SHALL NOT BE ROUTED IN THE ROOF CURB OR UNIT HOUSING. CONDENSATE PIPING, ELECTRICAL CONDUIT AND NATURAL GAS PIPING SHALL PENETRATE THE ROOF, AS APPLICABLE, ADJACENT TO THE ROOF CURB AND CONNECT TO THE UNIT EXTERNALLY. 34. PROVIDE AND INSTALL HARDWRED THERMOSTATS FOR EACH SYSTEM. VERIFY EXACT LOCATION WITH OWNER EQUIPMENT PRIOR TO ROUGH-IN. THERMOSTAT INSTALLATION SHALL BE IN ACCORDANCE WITH ALL LOCAL CODES. THERMOSTATS SHALL BE INSTALLED AT 48"AFF. THERMOSTATS SHALL BE 7-DAY PROGRAMMABLE STYLE. MERCURY OPERATED THERMOSTATS ARE NOT ACCEPTABLE. 35. ALL BARE SHEETMETAL SURFACES VISIBLE BEHIND ANY SIDEWALL HVAC GRILLE SHALL BE PAINTED FLAT BLACK. 36. CONTRACTOR SHALL IDENTIFY ALL SCHEDULED EQUIPMENT AND ASSOCIATED THERMOSTATS. IDENTIFICATION SHALL BE ENGRAVED TAG PERMANENTLY ADHERED TO EQUIPMENT. THERMOSTATS MAY BE IDENTIFIED WITH PERMANENT INK ON INSIDE OF REMOVABLE COVER. 37. THIS CONTRACTOR SHALL EXAMINE THE ENTIRE DRAWING PACKAGE AND INCLUDE ALL NECESSARY MATERIAL AND LABOR TO PROVIDE A COMPLETE AND OPERABLE SYSTEM AS INDICATED IN THE ENTIRE DRAWING SET FOR HIS RESPECTIVE SYSTEMS. 38. ALL RECTANGULAR OR SQUARE ELBOWS OR TEES SHALL BE INSTALLED WITH TURNING VANES AS PER SMACNA GUIDELINES. 39. ALL HYDRONIC PIPING SHALL BE TYPE L COPPER OR SCH 40 STEEL 2" PIPE AND SMALLER MAY BE THREADED. ALL NEW CHILLED WATER PIPING (UP TO 8") SHALL HAVE 1" INSULATION. (KRAFT BACK FIBERGLASS). NEW HOT WATER PIPING UP TO 1 1/4" SHALL HAVE 1 1/2" INSULATION (KRAFT BACK FIBERGLASS), 1 1/2" AND ABOVE SHALL HAVE 2" (KRAFT BACK FIBERGLASS). 40. PROVIDE FLEXIBLE CONNECTIONS FOR ALL EQUIPMENT CONNECTIONS TO HYDRONIC SYSTEM. 41. COORDINATE POWER REQUIREMENTS FOR ALL EQUIPMENT WITH ELECTRICAL CONTRACTOR PRIOR TO ORDERING EQUIPMENT. 42. SHOULD AHU BE USED DURING CONSTRUCTION, CONTRACTOR SHALL PROVIDE AIR FILTERS AND REPLACE EVERY TWO WEEKS AND PRIOR TO FINAL ACCEPTANCE OF THE BUILDING. 43. ANY PIPING INSTALLED BELOW PARKING AREAS, ROADWAYS, CONCRETE SLABS, DRIVEWAYS OR ANY HEAVY TRAFFIC AREAS SHALL BE BEDDED AND BACKFILLED WITH #57 LIMESTONE.

HVAC SCHEDULES & DETAILS

SCALE AS SHOWN

RUSKIN, MDRS25, ROUND WITH ADHESIVE BACKING SECURE TO DUCT WITH MANUAL BALANCING DAMPER. SHEET METAL SCREWS. -GALVANIZED STEEL ROUND BRANCH DUCT SAME SIZE ON 2" CENTERS AS DIFFUSER NECK W/2" FOIL BACKED INSULATION. HVAC DUCTWORK -----GALVANIZED STEEL ELBOW REFER TO PLAN FOR SIZE -FLEXIBLE DUCT 5' MAX. ON SUPPLY 2' MAX ON RETURN INSULATE DIFFUSER NECK AND DIFFUSER BACK WITH 1 1/2" FOIL BACKED FIBERGLASS. FLAG BALANCING DAMPER SQUARE TO ROUND W/MARKING TAPE -DIFFUSER ADAPTER AS REQ'D. CONNECT FLEXIBLE -CEILING DIFFUSER DUCT TO FITTING SEE PLAN FOR SIZE AND TYPE W/ METAL CLAMP CEIUNG - FIELD VERIFY TYPE CLG. & HEIGHT TYPICAL BRANCH RUN DETAIL

GENERAL INSTALLATION NOTES:

1. INSTALL ALL DRAIN AND SERVICE LINES AND HANGERS FOR UNOBSTRUCTED ACCESS TO SERVICE PANEL OF UNIT. 2. INSTALL UNIT SUCH THAT SERVICE SIDE OF UNIT IS NOT BLOCKED BY STRUCTURE, WALLS, OTHER TRADES, ETC. AS TO PREVENT SERVICE OF UNIT.

3. INSTALL AND ORIENT FILTER SUCH THAT FILTER ELEMENT CAN BE REMOVED AND REPLACED. 4. FURNACE SHALL BE INSTALLED LEVEL.

5. LABEL FURNACE WITH MINIMUM 3" TALL LETTERS ON BOTTOM SIDE OF AUXILIARY DRAIN PAN THE UNIT NUMBER AS SHOWN ON THE PLAN. LABEL CONDENSING UNIT OR HEAT PUMP WITH CORRESPONDING IDENTIFICATION.

6. PROVIDE RAIL/BLOCKING BETWEEN AIR HANDLER AND PAN TO ALLOW FOR ADEQUATE CONDENSATE TRAP. DRAW THRU CONFIGURATIONS MAY REQUIRE ADDITIONAL HEIGHT.

7. SEISMICALLY RESTRAIN AS PER IMC 301.15, IBC 1613 AND ASCE 7-10 13.1.3. TWO AXIS LATERAL SEISMIC SNUBBER EQUAL TO KINETICS MODEL HS-2 ON 1/4"X2"X2" ANGLE IRON. PROVIDE CERTIFIED CALCULATIONS AND SHOP DRAWINGS AS A SUBMITTAL. SEAL WATERTIGHT AT AUXILIARY DRAIN PAN.

8. PROVIDE AUXILIARY DRAIN PAN. AUXILIARY DRAIN PAN SHALL HAVE A MINIMUM DEPTH OF 1 1/2" AND SHALL BE NOT LESS THAN 3" LARGER THAN UNIT DIMENSIONS IN WIDTH AND LENGTH, AND SHALL BE CONSTRUCTED OF NOT LESS THAN 0.0276" GALVANIZED SHEET STEEL. PROVIDE A FLOAT SWITCH OR A SEPARATE DRAIN LINE OF NOT LESS THAN 3/4". TERMINATE AT A CONSPICUOUS POINT TO SERVE AS AN ALARM THAT THE REGULAR DRAIN IS RESTRICTED.

ENE ALL V REGUI SPECI CHAN BEAR	RAL PLUMBING NOTES:
SPECI CHAN BEAR	ORK SHALL BE EXECUTED AND INSPECTED IN ACCORDANCE WITH ALL LOCAL OR STATE CODES, LAWS, ORDINANCES, RULES AND ATIONS APPLICABLE TO THE PARTICULAR CLASS OF WORK. IF, TO THE KNOWLEDGE OF THE CONTRACTOR, THE DRAWINGS AND
THE {	FICATIONS ARE IN CONFLICT WITH THE ABOVE, HE SHALL PROMPTLY NOTIFY THE ENGINEER IN WRITING SO THAT ANY NECESSARY SES CAN BE PROVIDED FOR IN HIS CONTRACT. IF THE CONTRACTOR PERFORMS ANY WORK WITHOUT NOTICE AS REQUIRED, HE SHALL ALL COSTS OF CORRECTIVE ACTION. CONTRACTOR SHALL INCLUDE IN HIS OUDTATION ALL APPLICABLE SERVICE CHARGES, FEES, PERMITS, ROYALTIES, AND OTHER SMILLAR
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THE S	ITE. VERIFY ALL EXISTING CONDITIONS PRIOR TO CONSTRUCTION. EXISTING LAYOUT, IF SHOWN, DETERMINED FROM SITE OBSERVATIONS AS BUILT DRAWINGS. CONTRACTOR SHALL NOTIFY ENGINEER SHOULD EXISTING CONDITIONS DIFFER FROM THESE DRAWINGS RAWINGS INDICATE REQUIRED SIZE AND POINTS OF TERMINATION OF PIPES AND DUCTS, AND SUGGEST PROPER ROUTES OF PIPE TO WAN TO STRUCTURE. AVOID OBSTRUCTIONS AND PRESERVE OF FARANCES FROM ELECTRICAL PANELS. PLUMBING LINES SHALL NOT BE RUN
NREC THE V PRESI	TLY OVER ELECTRICAL PANELS. HOWEVER, IT IS NOT INTENDED THAT DRAWINGS INDICATE ALL NECESSARY OFFSETS, AND IT SHALL BE YORK OF THIS SECTION TO INSTALL PIPING AND DUCTS IN SUCH A MANNER AS TO CONFORM TO STRUCTURE, AVOID ALL OBSTRUCTIONS, RVE HEADROOM AND KEEP OPENINGS AND PASSAGEWAYS CLEAR WITHOUT FURTHER INSTRUCTION OR COST TO THE OWNER. PACTOR SHALL GLARANTEE ALL WORK PERFORMED UNDER THIS CONTRACT TO BE FREE FROM DEFECTS IN MATERIALS AND WORKMANSHIP
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N TH P	IE PROPOSED SUBSTITUTION SHALL HAVE THE SAME WARRANTY FURNISHED FOR THE PROPOSED SUBSTITUTION AS FOR THE SPECIFIED RODUCT. IE PROPOSED SUBSTITUTION SHALL HAVE THE SAME MAINTENANCE SERVICE AND AVAILABILITY OF SPARE PARTS.
. η . η 	IE LATEST APPLICABLE CODES. IE PROPOSED SUBSTITUTION SHALL HAVE NO ADVERSE EFFECT ON OTHER TRADES AND SHALL NOT AFFECT AND/OR DELAY THE ROGRESS SCHEDULE.
DI Ai RAN	THE CONTRACTOR SHALL BE RESPONSIBLE TO PAT FOR ANT CHANGES TO BUILDING DESIGN, INCLUDING ARCHITECTORAL/ENGINEERING ISIGN, DETAILING AND CONSTRUCTION COST CAUSED BY THE SUBSTITUTION AND TAKE SOLE RESPONSIBILITY FOR SUBSTITUTIONS THAT RE DEEMED "VALUE ENGINEERING" AND DETERMINED NOT EQUAL OR SUPERIOR TO THE PRODUCT SPECIFIED. SPORT AND HANDLE PRODUCTS IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.
TORE	AND PROTECT PRODUCTS IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS, WITH SEALS AND LABELS INTACT AND LEGIBLE. ATER HEATERS, PUMPS, ETC. SHALL HAVE U.L. LISTING OR EQUIVALENT. VERIFY THAT EACH PIECE OF EQUIPMENT OR SYSTEM HAS BEEN ATER FOR PROPER LUBRICATION, DRIVE ROTATION, BELT TENSION, CONTROL SEQUENCE, OR FOR OTHER CONDITIONS WHICH MAY CAUSE GE.
emoi Xeci Eism Upp	NSTRATE OPERATION AND MAINTENANCE OF PRODUCTS TO OWNER'S PERSONNEL ONE WEEK PRIOR TO DATE OF FINAL INSPECTION. ITE FINAL CLEANING PRIOR TO FINAL PROJECT ASSESSMENT. ICALLY RESTRAIN SUSPENDED PLUMBING EQUIPMENT, GAS PIPING AND HYDRONIC PIPING AS REQUIRED BY LOCAL CODE. PROVIDE INT AND EQUIPMENT REQUIRED TO CONTROL EXPANSION AND CONTRACTION OF PIPING. PROVIDE LOOPS, PIPE OFFSETS, AND SWING
OINT: ANIT RAIN EQU	S, OR EXPANSION JOINTS WHERE REQUIRED. ARY DRAIN/VENT PIPING LOCATED IN RETURN PLENUM SHALL BE SERVICE WEIGHT CAST IRON (ASTM A74). ALL OTHER SANITARY /VENT PIPING MAY BE SCHEDULE 40 PVC (ASTM 2665) OR SERVICE WEIGHT CAST IRON (ASTM A74). CONFORM TO LOCAL CODE REMENTS.
OME: ATEI	STIC WATER PIPING ON PUBLIC WATER SYSTEMS SHALL BE TYPE "L" COPPER (ASTM B88) WITH SOLDER CONNECTIONS. UNDERGROUND R PIPING SHALL BE TYPE "K" COPPER OR SCHEDULE 40 PVC (ASTM D1785), AS LOCAL CODES ALLOW. ANY PIPING ON A DOMESTIC WELL BE SCH 40 PVC/CPVC OR TYPE "A" PEX. INSULATE DOMESTIC WATER LINES WITH 1/2" THICK FIBERGLASS. HOT WATER LINES AND DEPENDENT ATMOS AND A DOMESTIC WATER LINES WITH 1/2" THICK FIBERGLASS. HOT WATER LINES AND DEPENDENT ATMOS AND A DOMESTIC WATER LINES WITH 1/2" THICK FIBERGLASS. HOT WATER LINES AND
HALI EFOI RAIN	ECIRCULATING LOOPS OF TO T 172 SHALL BE INSOLATED WITH T THICK FIBERGLASS INSOLATION. HOT WATER LINES 2 AND LARGER HAVE 2° THICK FIBERGLASS INSULATION E COMMENCING WORK ON SANITARY SEWER, CHECK INVERTS AND ENSURE THAT THESE CAN BE PROPERLY CONNECTED WITH SLOPE FOR AGE AND COVER TO AVOID FREEZING.
ROV RES ROV ROV	DE NEW WATER SERVICE COMPLETE WITH REDUCED PRESSURE BACKFLOW PREVENTER. WHERE WATER PRESSURES EXCEED BOPSI, PROVIDE SURE REDUCING VALVE WITH STRAINER UPSTREAM OF BACKFLOW PREVENTER. DE NON-CONDUCTING DIELECTRIC CONNECTIONS WHEREVER JOINTING DISSIMILAR METALS. DE ACCESSIBLE STOPS IN PIPING CONNECTIONS TO ALL PLUMBING FIXTURES.
SSUI REEZ ERIF LUMI	RE EXTERIOR WALL CHASES ARE INSULATED TO PREVENT PREEZING. WATER LINES SHALL NOT BE INSTALLED IN AREAS SUBJECT TO ING TEMPERATURES. Y MILLWORK DIMENSIONS WITH ARCHITECTURAL DRAWINGS PRIOR TO ORDERING SINKS AND LAVATORIES. PROVIDE INSULATING ADA SING JACKETS UNDER EACH ADA FIXTURE WITH EXPOSED DRAIN AND WATER PIPING.
ROVI ROVI ROVI HW.	DE PIPE LABELS FOR ALL PIPING STSTEMS. DE TRAP PRIMERS FOR ALL FLOOR DRAINS AND ENSURE THAT FLOOR SLOPES TO DRAIN AT FLOOR DRAIN. DE AND INSTALL WADE SHOCKSTOPS FOR DOMESTIC WATER PIPING SYSTEM. TWO REQUIRED PER BATHROOM UNIT. ONE DCW AND ONE PROVIDE SHUTOFF VALVE FOR SERVICING SHOCKSTOP.
erif Heri I.L. 1 His	Y FLOOR PLAN AND WALL/FLOOR/CEILING RATINGS WITH ARCHITECTURAL PLANS. PROVIDE RATED PENETRATIONS AT EACH INSTANCE E PLUMBING INSTALLATION PENETRATES A RATED ASSEMBLY. PENETRATIONS SHALL BE PER DETAILS ON THE DRAWINGS OR SOME OTHER ISTED DESIGN. CONTRACTOR SHALL EXAMINE THE ENTIRE DRAWING PACKAGE AND INCLUDE ALL NECESSARY MATERIAL AND LABOR TO PROVIDE A
omp he f ipin(leai	LETE AND OPERABLE SYSTEM AS INDICATED IN THE ENTIRE DRAWING SET FOR HIS RESPECTIVE SYSTEMS. LUMBER SHALL PROVIDE A COMPLETE AND OPERABLE PLUMBING SYSTEM INCLUDING BUT NOT LIMITED TO ALL FIXTURES, BUILDING WATER AND INSULATION, SITE WATER PIPING, BUILDING WASTE AND VENT PIPING, SITE SEWER, PUBLIC SYSTEM TAP FEES, EXTENSION CHARGES, ING OF WATER SYSTEM, IDENTIFICATION OF ALL PIPING, ETC.
HE C HE S OCAI HE 1	RAINAGE SYSTEM(S) AND THE VENT SYSTEM(S) SHALL BE TESTED, IN ITS ENTIRETY, FOR 15 MINUTES, WITH A 10 FOOT HEAD OF WATER. IYSTEM SHALL PROVE TIGHT AT ALL POINTS. TESTING SHALL BE THUS OR AS PER OTHER METHOD APPROVED BY THE ENGINEER OR INSPECTOR. TEST SHALL OCCUR BEFORE ANY BACKFILLING ON UNDERGROUND PORTIONS. WATER SUPPLY SYSTEM SHALL BE TESTED, IN ITS ENTIRETY, BY FILLING WITH WATER AND PRESSURING TO OPERATING PRESSURE.
YSTE Rovi Omp Or 1	MS OTHER THAN PLASTIC MAY BE PNEUMATICALLY TESTED AT 50 PSI FOR 15 MINUTES IN LIEU OF WATER TEST. ALL TESTS SHALL THE SYSTEM TIGHT. RESSED AIR PIPING SHALL BE SCH 40 STEEL WITH THREADED MI FITTINGS. COMPRESSED AIR SYSTEM SHALL BE PNEUMATICALLY TESTED 5 MIN AT 100PSI AND PROVED LEAK TIGHT.
RAIN ROM ODE	JWN THESE DRAWINGS, DISPOSE OF CONDENSATE IN ACCORDANCE WITH LOCAL CODE REQUIREMENTS. PROVIDE TRAP IN CONDENSATE LINE AT EACH COLL OR 90+ FURNACE IN ACCORDANCE WITH PUBLISHED MANUFACTURER'S INSTRUCTIONS. EACH TRAP SHALL BE DED WITH A TEE TO ALLOW FOR CLEANING. CONDENSATE PIPING SHALL BE SCH 40 PVC UNLESS NOTED OTHERWISE OR PROHIBITED BY S. INSULATE CONDENSATE DRAIN PIPING, SLOPE TO DRAIN, AND TERMINATE IN ACCORDANCE WITH CODE OR AS SHOWN ON THESE
RAM COF LEVI IPINI	NGS. DRAIN PIPING, IF SHOWN ON THESE DRAWINGS, SHALL BE SCH. 40 PVC. SUPPORT ROOF DRAIN PIPING WITH ALL THREAD ROD AND S HANGERS. INSULATE ROOF DRAIN BODIES AND HORIZONTAL ROOF DRAIN PIPING WITH 1/2" THICK FIBERGLASS INSULATION. OVERFLOW G DOES NOT REQUIRE INSULATION. OVERFLOW SYSTEM SHALL DISCHARGE ABOVE GRADE, TO INDICATE THAT PRIMARY SYSTEM IS NOT
UNC ROVI IATUI	TIONING. DE 3/8" DCW CONNECTION TO ICE MAKER IF NECESSARY. RAL GAS PIPING, IF SHOWN ON THESE DRAWINGS, SHALL BE SCH. 40 BLACK STEEL ABOVE GROUND WITH EITHER THREADED OR WELDED GS. PAINT PIPING LOCATED OUTDOORS. ALL NATURAL GAS PIPING PERMANENTLY CONCEALED IN WALLS, CHASES, ETC. SHALL HAVE
velde Polyt Xopp Rov	D CONNECTIONS. IF APPROVED BY THE LOCAL GAS UTILITY, PIPE BELOW GRADE MAY BE DRISCOPIPE 6500, OR APPROVED THYLENE TYPE, INSTALLED TO CONFORM TO MANUFACTURER'S RECOMMENDATIONS AND LOCAL UTILITY REQUIREMENTS. PROVIDE YELLOW TRACER WRE OR OTHER APPROVED CONDUCTOR INSTALLED ADJACENT TO UNDERGROUND NONMETALLIC PIPING. ACCESS SHALL BE
RACI	DED TO THE TRACER WINE ON THE TRACER WINE SHALL TERMINATE ABOVE GROUND AT EACH END OF THE NONMETALLIC PIPING. THE
VATUI NYY I NND I	DED TO THE TRACER WIRE OR THE TRACER WIRE SHALL TERMINATE ABOVE GROUND AT EACH END OF THE NONMETALLIC PIPING. THE TR WIRE SHALL NOT BE LESS THAN 18 AWG AND THE INSULATION TYPE SHALL BE SUITABLE FOR DIRECT BURIAL. ALL NEW OR MODIFIED TAL GAS SYSTEMS SHALL BE TESTED AND PURGED PER IFGC CHAPTER 4 SECTION 406. PIPING INSTALLED BELOW PARKING AREAS, ROADWAYS, CONCRETE SLABS, DRIVEWAYS OR ANY HEAVY TRAFFIC AREAS SHALL BE BEDDED BACKFILLED WITH #57 LIMESTONE.
IATU. NY I ND I	DED TO THE TRACER WIRE OR THE TRACER WIRE SHALL TERMINATE ABOVE GROUND AT EACH END OF THE NONMETALLIC PIPING. THE TR WIRE SHALL NOT BE LESS THAN 18 AWG AND THE INSULATION TYPE SHALL BE SUITABLE FOR DIRECT BURIAL. ALL NEW OR MODIFIED TAL GAS SYSTEMS SHALL BE TESTED AND PURGED PER IFGC CHAPTER 4 SECTION 406. PIPING INSTALLED BELOW PARKING AREAS, ROADWAYS, CONCRETE SLABS, DRIVEWAYS OR ANY HEAVY TRAFFIC AREAS SHALL BE BEDDED BACKFILLED WITH #57 LIMESTONE.
ATU NY I ND I	DED TO THE TRACER WIRE OR THE TRACER WIRE SHALL TERMINATE ABOVE GROUND AT EACH END OF THE NONMETALLIC PIPING. THE TR WIRE SHALL NOT BE LESS THAN 18 AWG AND THE INSULATION TYPE SHALL BE SUITABLE FOR DIRECT BURIAL. ALL NEW OR MODIFIED RAL GAS SYSTEMS SHALL BE TESTED AND PURGED PER IFGC CHAPTER 4 SECTION 406. PIPING INSTALLED BELOW PARKING AREAS, ROADWAYS, CONCRETE SLABS, DRIVEWAYS OR ANY HEAVY TRAFFIC AREAS SHALL BE BEDDED BACKFILLED WITH \$57 LIMESTONE.
ATU NY I ND I	DED TO THE TRACER WIRE ON THE TRACER WIRE SHALL TERMINATE ABOVE GROUND AT EACH END OF THE NORMETALLIC PIPING. THE TR WIRE SHALL NOT BE LESS THAN 18 AWG AND THE INSULATION TYPE SHALL BE SUITABLE FOR DIRECT BURIAL. ALL NEW OR MODIFIED RAL GAS SYSTEMS SHALL BE TESTED AND PURGED PER IFGC CHAPTER 4 SECTION 406. PIPING INSTALLED BELOW PARKING AREAS, ROADWAYS, CONCRETE SLABS, DRIVEWAYS OR ANY HEAVY TRAFFIC AREAS SHALL BE BEDDED BACKFILLED WITH \$57 LIMESTONE. SYSTEM NO. W-L-2002
ATU NY I ND	DED TO THE TRACER WIRE ON THE TRACER WIRE SHALL TERMINATE ABOVE GROUND AT EACH END OF THE NORMETALLIC PIPING. THE RAL GAS SYSTEMS SHALL BE TESTED AND PURGED PER IFGC CHAPTER 4 SECTION 406. PIPING INSTALLED BELOW PARKING AREAS, ROADWAYS, CONCRETE SLABS, DRIVEWAYS OR ANY HEAVY TRAFFIC AREAS SHALL BE BEDDED BACKFILLED WITH #57 LIMESTONE. SYSTEM NO. W-L-2002 NOVEMBER 20, 2009 F RATINGS -1, 1-1/2 AND 2 HR (SEE ITEM 3) F RATINGS -1, 1-1/2 AND 2 HR (SEE ITEM 3)
	DED TO THE IRACER WIRE OR THE TRACER WIRE SHALL TERMINATE ABOVE GROUND AT EACH END OF THE NOMEITALLE PIPING. THE RALE AS SYSTEMS SHALL BE LESS THAN 18 AWG AND THE INSULATION TYPE SHALL BE SUITABLE FOR DIRECT BURIAL. ALL NEW OR MODIFIED TPING INSTALLED BELOW PARKING AREAS, ROADWAYS, CONCRETE SLABS, DRIVEWAYS OR ANY HEAVY TRAFFIC AREAS SHALL BE BEDDED JACKFILLED WITH #57 LIMESTONE. SYSTEM NO. W-L-2002 NOVEMBER 20, 2009 F RATINGS -1, 1-1/2 AND 2 HR (SEE ITEM 3) T RATINGS -3/4, 1, 1-1/2 AND 2 HR (SEE ITEM 3) L RATING AT AMBENT -7 CFM/SQ FT (SEE ITEM 3C) L RATING AT 400 F -1 CFM/SQ FT (SEE ITEM 3C)
	DED TO THE TRACER WIRE OR THE TRACER WIRE SHALL TERMINATE ABOVE GROUND AT EACH END OF THE NONMETALLO FINING. THE TRATEGAS SYSTEMS SHALL BE TESTED AND PURGED PER IFGC CHAPTER 4 SECTION 406. PINIG INSTALLED BELLOW PARKING AREAS, ROADWAYS, CONCRETE SLABS, DRIVEWAYS OR ANY HEAVY TRAFFIC AREAS SHALL BE BEDDED BACKFILLED WITH #57 LIMESTONE. SYSTEM NO. W-L-2002 NOVEMBER 20, 2009 F RATINGS1, 1-1/2 AND 2 HR (SEE ITEM 3) T RATINGS3/4, 1, 1-1/2 AND 2 HR (SEE ITEM 3) L RATING AT A00 F1 CFM/SQ FT (SEE ITEM 3C) L RATING AT 400 F1 CFM/SQ FT (SEE ITEM 3C)
	DED ID THE TRACER WHE OR THE TRACER WHE SHALL TEMMINATE ABOVE ORDUND AT EACH END OF THE INCOMETALLE FINNES. THE RW RES SHALL NOT BE LESS THAN IB AWG AND THE INSULATION TYPE SHALL BE STON 406. PIPING INSTALLED BELOW PARKING AREAS, ROADWAYS, CONCRETE SLABS, DRIVEWAYS OR ANY HEAVY TRAFFIC AREAS SHALL BE BEDDED BACKFILLED WITH #57 LIMESTONE. SYSTEM NO. W-L-2002 NOVEMBER 20, 2009 F RATINGS -1, 1-1/2 AND 2 HR (SEE ITEM 3) T RATINGS -3,4,1, 1-1/2 AND 2 HR (SEE ITEM 3) L RATING AT AMOUNT J CFM SQ FT (SEE ITEM 3C) L RATING AT AMOUNT - 7 CFM/SQ FT (SEE ITEM 3C) L RATING AT AMOUNT - 7 CFM/SQ FT (SEE ITEM 3C)
	DED TO THE TRACER WIRE OR THE TRACER WIRE SHALL BERMINATE ABOVE GROUND AT EACH END OF THE NORMETALLO PHYNE. THE TRACE AS SYSTEMS SHALL BE TESTED AND PURCED PER IFGC CHAPTER 4 SECTION 406. "PINING INSTALLED BELOW PARKING AREAS, ROADWAYS, CONCRETE SLABS, DRIVEWAYS OR ANY HEAVY TRAFFIC AREAS SHALL BE BEDDED AACKFILLED WITH \$57 LIMESTONE. SYSTEM NO. W-L-2002 NOVEMBER 20, 2009 F RATINGS1, 1-1/2 AND 2 HR (SEE ITEM 3) T RATINGS1, 1-1/2 AND 2 HR (SEE ITEM 3) L RATING AT AMBIENT -7 CFM/SQ FT (SEE ITEM 3C) L RATING AT AMBIENT -7 CFM/SQ FT (SEE ITEM 3C) L RATING AT AMBIENT -7 CFM/SQ FT (SEE ITEM 3C) MOVEMBER 20, 2009
	DED TO THE TRADER WHE ON THE TRADER WHE SHALL TERMINATE ABOVE GROUND AT EACH END OF THE MORELTALLE PIPHING. THE TRANS AS SYSTEMS SHALL BE TESTED AND PURGED PER IFIC CHAPTER 4 SECTION 406. "PIPHING INSTALLED BELIND PARKING AREAS, ROADWAYS, CONCRETE SLABS, DRIVEWAYS OR ANY HEAVY TRAFFIC AREAS SHALL BE BEDDED SACKFILLED WITH #57 LIMESTONE. SYSTEM NO. W-L-2002 NOVEMBER 20, 2009 F RATINGS -1, 1-1/2 AND 2 HR (SEE ITEM 3) I RATINGS -3/4, 1, 1-1/2 AND 2 HR (SEE ITEM 3) L RATINGS -3/4, 1, 1-1/2 AND 2 HR (SEE ITEM 3) L RATINGS -3/4, 1, 1-1/2 AND 2 HR (SEE ITEM 3) L RATINGS -10 CFM/SQ FT (SEE ITEM 3) L RATING AT 400 F -1 CFM/SQ FT (SEE ITEM 3C) BE TO THE SECTION ACTION OF THE SECTION AND FOR THE SECTION ACTION OF THE SECTION OF
	DED TO THE TRADER WING OK THE TRADER WING STALL TERMINATE ABOVE GROUND AT EACH END OF EN OWNET ALLINE WING AND THE TRADER AND FURGED PER IFOC CHAPTER 4 SECTION 406. THE SALL NOT BE LESS THAN IS AND FURGED PER IFOC CHAPTER 4 SECTION 406. THE SALL BE BELOW PARKING AREAS, ROADWAYS, CONCRETE SLABS, DRIVEWAYS OR ANY HEAVY TRAFFIC AREAS SHALL BE BEDDED ACCRLLED WITH \$57 LIMESTONE. SYSTEM NO. W-L-2002 NOVEMBER 20, 2009 F RATINGS -1, 1-1/2 AND 2 HR (SEE ITEM 3) TRATINGS -1, 1-1/2 AND 2 HR (SEE ITEM 3) L RATINGS -1, 1-1/2 AND 2 HR (SEE ITEM 3) L RATING AT AMBENT -7 CRA/SQ FT (SEE ITEM 3C) L RATING AT AMBENT -7 CRA/SQ FT (SEE IT
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	DED TO THE TRADER MEE OF THE TRADEX WHE SHALL ENHANCE AREAS FOR DUPLECT BOARD HER NORME LALL CHING. MADERED WAS SYSTEM SHALL BE TEATED AND PROPERE TRADE OF CHINTER 4, STORE OF OR DUPLECT BURNAL ALL NEW NOR MODIFIED TRADER THE DATE TO AND TRADEX WHE SHALL BEARD AND THE TRADE OF OR DUPLECT BURNAL ALL NEW NOR MODIFIED TRADER THE DATE TO AND TRADEX WHE SHALL BEARD AND THE TRADE OF OR DUPLECT BURNAL ALL NEW NOR MODIFIED TRADER THE DATE TO AND TRADEX WHE SHALL BEARD AND THE TRADE OF OR DUPLECT BURNAL ALL NEW NOR MODIFIED TRADER THE DATE TO AND TRADEX THE SHALL BEARD AND THE TRADE OF THE
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+PIPE COVERING MATERIAL WRAP REQUIRED ON PIPE ON BOTH SIDES OF WALL.

(A)C = CLOSED systems, V = VENTED systems.

THE DETAILS OF THE FIRESTOP SYSTEM SHALL BE AS FOLLOWS.

A. FILL, VOID OR CAVITY MATERIALS* - WRAP STRIP - NOM 1/4 IN. (6 MM) THICK INTUMESCENT ELASTOMERIC MATERIAL FACED ON ONE SIDE WITH ALUMINUM FOIL, SUPPLIED IN 2 IN. (51 MM) WIDE STRIPS. NOM 2 IN. (51 MM) WIDE STRIPS TIGHTLY WRAPPED AROUND NONMETALLIC PIPE OR CONDUIT (FOIL SIDE EXPOSED) WITH THE EDGES BUTTED AGAINST THE SURFACE OF THE WALL. SUFFICIENT LAYERS OF WRAP STRIP SHALL BE INSTALLED TO LAP A MIN OF 3/16 IN. (5 MM) ON THE WALL SURFACE AROUND THE ENTIRE PERIMETER OF THE CIRCULAR THROUGH OPENING. FOR NOM 1/2 IN. (13 MM) TO NOM 2 IN. (51 MM) DIAM PIPES OR CONDUITS, A MIN OF ONE LAYER OF WRAP STRIP IS REQUIRED. FOR NOM 2-1/2 IN. (64 MM) AND NOM 3 IN. (76 MM) DIAM PIPES, A MIN OF TWO LAYERS OF WRAP STRIP IS REQUIRED. FOR NOM 3-1/2 IN. (89 MM) AND NOM 4 IN. (102 MM) DIAM PIPES, A MIN OF THREE LAYERS OF WRAP STRIP IS REQUIRED. FOR NOM 5 AND 6 IN. (127 AND 152 MM) DIAM, TWO TIERS (4 IN. (102 MM)OVERALL LENGTH) OF THREE LAYERS OF WRAP STRIP IS REQUIRED, WITH ADJOINING WRAP STRIP LAYER EDGES BETWEEN TIERS TIGHTLY BUTTED. EACH LAYER OF WRAP STRIP TO BE INSTALLED WITH BUTTED SEAM, WITH BUTTED SEAMS IN SUCCESSIVE LAYERS STAGGERED, WRAP STRIP LAYERS TEMPORARILY HELD IN POSITION USING ALUMINUM FOIL TAPE, STEEL WRE TIE OR EQUIVALENT 3M COMPANY - TYPE FS-195+

B. STEEL COLLAR -NOM 2 OR 4 IN. (51 OR 102 MM) DEEP COLLAR WITH 1-1/4 IN. (32 MM) WDE BY 2 IN. (51 MM) LONG ANCHOR TABS AND MIN 3/4 IN. (19 MM) LONG TABS TO RETAIN WRAP STRIP LAYERS. COILS OF PRECUT 0.016 IN. (0.41 MM) THICK (NO. 30 28 GAUGE) GALV SHEET STEEL AVAILABLE FROM WRAP STRIP MANUFACTURER. AS AN ALTERNATE, COLLAR MAY BE FIELD-FABRICATED FROM MIN 0.016 IN. (0.41 MM) THICK (NO. 30 28 GAUGE) GALV SHEET STEEL IN ACCORDANCE WITH INSTRUCTION SHEET SUPPLIED BY WRAP STRIP MANUFACTURER. STEEL COLLAR, WITH ANCHOR TABS BENT OUTWARD 90 DEG, WRAPPED TIGHTLY AROUND WRAP STRIP LAYERS WITH MIN 1 IN. (25 MM) OVERLAP AT THE SEAM. WITH STEEL COLLAR ANCHOR TABS PRESSED TIGHTLY AGAINST WALL SURFACE, COMPRESS COLLAR AROUND WRAP STRIP LAYERS USING A MIN 1/2 IN. (13 MM) WDE BY 0.028 IN. (0.71 MM) THICK STAINLESS STEEL BAND CLAMP WITH WORM DRIVE TIGHTENING MECHANISM AT THE COLLÀR MIDHEIGHT. AS AN ALTERNATE TO THE STAINLESS STEEL BAND CLAMP, THE STEEL COLLAR MAY BE COMPRESSED AROUND NOM 4 IN. DIAM (OR SMALLER NONMETALLIC PIPES USING TWO MIN 16 SWG (0.0625 IN. (0.016 MM) DIAM) STEEL WIRES SECURED WITH MULTIPLE TWISTS. AS AN ALTERNATE TO THE BAND CLAMPS OR STEEL WRES, COLLARS MAY BE SECURED BY / MEANS NO. 10 BY 1/2 IN. (13 MM) LONG SHEET METAL SCREWS INSTALLED IN THE VERTICAL AXIS AT THE CENTER OF THE 1 IN. (25 MM) OVERLAP ALONG THE PERIMETER JOINT OF THE COLLAR. A MIN OF THREE SCREWS IS REQUIRED. SECURE COLLAR TO WALL SURFACE WITH 3/16 IN. (5 MM) DIAM STEEL TOGGLE BOLTS IN CONJUNCTION WITH MIN 1-1/2 IN. (38 MM) DIAM STEEL WASHERS.

THREE BOLTS, SYMMETRICALLY LOCATED, REQUIRED FOR 2 IN. (51 MM) DEEP STEEL COLLAR FOR NOM 1/2 IN. (13 MM) TO NOM 3 IN. (76 MM) DIAM PIPES. FOUR BOLTS, SYMMETRICALLY LOCATED, REQUIRED FOR 2 IN. (51 MM) DEEP STEEL COLLAR FOR NOW 3-1/2 AND 4 IN. (89 AND 102 MM) DIAM PIPES. FIVE TO SEVEN BOLTS (EVERY OTHER ANCHOR TAB) REQUIRED FOR 4 IN. (102 MM) DEEP STEEL COLLAR FOR NOM 5 AND 6 IN. (127 AND 152 MM) DIAM PIPES. AS A FINAL STEP, BEND RETAINER TABS 90 DEG TOWARD PIPE TO LOCK WRAP STRIP LAYERS IN POSITION.

C. FILL VOID OR CAVITY MATERIALS* -- CAULK. SEALANT OR PUTTY -- GENEROUS BEAD OF CAULK APPLIED TO OUTER PERIMETER OF WRAP STRIP AT INTERFACE WITH WALL SURFACE AND TO PERIMETER OF PIPE OR CONDUIT AT ITS EGRESS FROM THE WRAP STRIP LAYERS. 3M COMPANY - CP 25WB+ CAULK AND MP+ STIX PUTTY, IC 15WB+ CAULK, FIREDAM 150+ CAULK, OR FB-3000 WT SEALANT

(NOTE: L RATINGS APPLY ONLY WHEN CP 25WB+ CAULK OR FB-3000 WT SEALANT IS USED. CP 25WB+ AND FIREDAM 150+ NOT SUITABLE FOR USE WITH CPVC PIPES.)

DENSITY (MIN 3.5 PCF OR 56 KG/M3) GLASS FIBER UNITS JACKETED ON THE OUTSIDE WITH AN ALL SERVICE JACKET. WHEN REQUIRED (SEE TABLE), MIN 6 IN. (152 MM) LENGTH OF PIPE COVERING INSTALLED AROUND PVC PIPE AT ITS EGRESS FROM STEEL COLLAR ON BOTH SIDES OF WALL. PIPE COVERING SECURED TO PIPE WITH STEEL WRE TIES SPACED MAX 4 IN. (102 MM) OC. EDGE OF PIPE COVERING ABUTTING STEEL COLLAR TO BE SEALED WITH A MIN 1/4 IN (6 MM). DIAM BEAD OF CAULK (ITEM C). SEE PIPE AND EQUIPMENT COVERING -- MATERIALS (BRGU) CATEGORY IN BUILDING MATERIALS DIRECTORY

FOR NAMES OF MANUFACTURERS. ANY PIPE COVERING MATERIAL MEETING THE ABOVE SPECIFICATIONS AND BEARING THE UL CLASSIFICATION MARKING WITH A FLAME SPREAD INDEX OF 25 OR LESS AND A SMOKE DEVELOPED INDEX OF 50 OR LESS MAY BE USED.

E. FIRESTOP DEVICE* -- (NOT SHOWN) -- AS AN ALTERNATE TO ITEMS A, B AND C FOR NOM 1-1/2, 2, 3 OR 4 IN. (38, 51, 76 OR 102 MM) DIAM NONMETALLIC PIPES, A FIRESTOP DEVICE CONSISTING OF A SHEET-STEEL SPLIT COLLAR LINED WITH INTUMESCENT MATERIAL AND PROVIDED WITH STEEL CLIPS FOR ATTACHMENT MAY BE USED. FIRESTOP DEVICE TO BE INSTALLED ON BOTH SIDES OF WALL IN ACCORDANCE WITH THE ACCOMPANYING INSTALLATION INSTRUCTIONS.

footnoted for floor assembly in table under item 3, min thickness of solid concrete floor or wall assembly is 4-1/2 in. (114 mm). Floor assembly may also be constructed of any min 6 in. (152 mm) thick UL Classified hollow core Precast Concrete Units*. Wall may also be constructed of any UL Classified Concrete Blocks*. Diam of opening through floor or wall to be 0 to 1/4 in. (0 to 6 mm) larger than the outside diam of nom 2 in. (51 mm) diam and smaller pipes or conduits. Diam of opening to be 0 to 1/2 in. (0 to 13 mm) larger than the outside diam of nom 2-1/2 in. (64 mm) diam and larger pipes or conduits. Max diam of opening is 7 in. (178 mm). See Concrete Blocks (CAZT) and Precast Concrete Units (CFTV) categories in Fire Resistance Directory for names of

manufacturers.

2. Through Penetrants - One nonmetallic pipe or conduit to be centered in the through opening. Pipe or conduit to be rigidly supported on both sides of the floor or wall assembly. The following types and sizes of nonmetallic pipes or conduits may be used: A. Polyvinyl Chioride (PVC) Pipe -Nom 6 in. (152 mm) diam (or smaller) Schedule 40 solid-core PVC pipe for use in

closed (process or supply) or vented (drain, waste or vent) piping system. B. Cellular - Core Polyvinyl Chloride (ccPVC) Pipe - Nom 4 in. (102 mm) diam (or smaller) Schedule 40 cellular core PVC pipe for use in closed (process or supply) or vented (drain, waste or vent) piping system. C. Chlorinated Polyvinyl Chloride (CPVC) Pipe - Nom 6 in. (152 mm) diam (or smaller) SDR13.5 CPVC pipe for use in closed (process or supply) piping systems. D. Acrylonitrile Butadiene Styrene (ABS) Pipe -- Nom 4 in. (102 mm) diam (or smaller) Schedule 40 solid-core ABS pipe

for use in closed (process or supply) or vented (drain, waste or vent) piping systems. E. Cellular Core Acrylonitrite Butadiene Styrene (ccABS) Pipe -- Nom 4 in. (102 mm) diam (or smaller) Schedule 40 cellular core ABS pipe for use in closed (process or supply) or vented (drain, waste or vent) piping avatem F. Polybutylene (PB) Pipe -- Nom 3 in. (76 mm) diam (or smaller) SDR11 (or heavier) PB pipe for use in closed (process

or supply) or vented (drain, waste or vent) piping systems. G. Rigid Nonmetallic Conduit++ -- Nom 4 in. (102 mm) diam (or smaller) (Schedule 40 or 80) PVC conduit installed in accordance with Article 347 of the National Electric Code (NFPA No. 70). H. Flame Retardant Polypropylene (FRPP) Pipe -- Nom 4 in. (102 mm) diam (or smaller) Schedule 40 (or heavier) FRPP pipe for use in closed (process or supply) or vented (drain, waste or vent) piping systems. See Rigid Nonmetallic Conduit (DZKT) category in UL Electrical Construction Materials Directory for names of manufacturers.

3. Firestop System — The details of the firestop system shall be as follows: A. Fill, Vold or Cavity Materials* — Wrap Strip — Nom 1/4 in. (6 mm) thick intumescent elastomeric material faced on one side with aluminum foil, supplied in 1 and 2 in. (25 and 51 mm) wide strips. Strips tightly wrapped around nonmetallic pipe (fail side exposed) with the edges butted against the underside of the concrete floor or both sides of wall surface. Sufficient layers of wrap strip shall be installed to lap a min of 3/16 in. (5 mm) on the concrete around the entire perimeter of the through opening. The min wrap strip width and the min number of layers of wrap required is dependent upon the pipe type, the nom pipe diam, the wall of floor thickness and the hourly T Rating required, as

5185 2280 518	Nom Pipe Diam Ja.	Min Wail or Floor Thkss In.	Wrap Strip Width Ia.	Plin Wřap Strip Layers	T Boting Nr
PVC, cCPVC or CFVC	1/2 to 1-1/2 (13 to 58)	2+1/2 (64)	; (52)	I	9
ABS, COABS or FRPP (8)	2/2 to 1-1/2 (13 to 38)	2-1/2 (64)	1 (25)	1	1
PVC, poPVC or CPVC	1/2 to 2 (13 to \$3)	2-1/2 (64)	2 (\$1)	ĩ	9
PVC, coPVC or CPVC	2 (51)	2-1/2 (64)	1 (28)	Ż	3
ABS, CCABS OF PRPP (d)	2 (13:10 38)	2-1/2 (64)	i (25)	Ϋ́	ĩ
PVC, CEPVC of CPVC	2-172 to 3 (64 to 76)	8+1/8 (64)	2 (\$1)	\$	ð
PVC, odPVC or CPVC	0-1/2 to 4 (69 to 102)	2-1/2 (64)	2 (81)	3	\$
PVC, OPVC or CPVC,	1/2 to 1/1/2 (13 to 38)	4-1/2 (114)	1 (25)	1	2
A&S. ccPVC or FRPF (a)					
PVC, «PVC, CPVC, ABS,	3 (19 to 58).	4-1/2 (114)	1 (25)	\$	2
ABS, ocasis or FEPP (a)					
PVC, coPVC, CPVC,	2-1/2 to 3 (64 to 78)	4-1/2 (334)	1 (25)	3	2
ABS, ccABS or FRPP (a)					
PVC, ESPVC, CPVC, ABS,	2-1/2 to 3 (64 to 76).	4-1/2 (114)	2.(51)	2	ž
ecads, PB of FRFP (a)					·
PVC, coPVC or CPVC	2-1/2 to 4 (83 to 132)	4-1/2 (114)	2 (\$1)	2	1-1/2
PVC, soPVC, CPVC,	3-1/2 to 4 (89 to 192)	4-1/2 (114)	2 (51)	3	2
ABIS COABIS OF FROM					
PVC	s (15ž)	4-3/2 23143	3 (78)	3	Û

TANKLESS	GAS	WATER	HE	A
rag				
QUANTITY				
MANUFACTURER				
MODEL NUMBER				
IYPE				
CAPACITY				
NPUT (BTUH)				
XUTPUT TEMPERAT	WRE			
FFICIENCY				
VOTES				

- 1) VENT PER MANUFACTURER'S RECOMMENDATIONS.) ISOLATOR KIT
-) PROVIDE, INSTALL AND WIRE FACTORY REMOTE CONTROLLER/COMMUNICATION CABLE AS REQUIRED 4) VENT CAP) RELIEF VALVE
-) COMMERCIAL MODEL ONLY) PROVIDE SERVICES OF A FACTORY AUTHORIZED SERVICE
- RÉPRESENTATIVE FOR START-UP AND CERTIFICATION. 8) PROVIDE WITH PROPERLY SIZED ASME EXPANSION TANK 9) MAINTAIN MINIMUM 18" CLEAR ON EACH SIDE OF WATER
- HEATER AND 36" IN FRONT.

SECTION A-A

B. Fill, Void or Cavity Materials* — Caulk, Sealant or Putty — (Not Shown) — Generous bead of caulk or putty to be applied to outer perimeter of wrap strip at its interface with floor or wall surface(s). 3M COMPANY - CP 25WB+ caulk; FB-3000 WT sealant; Type MP+ Stix putty or IC 15WB+ caulk (Note: L Ratings apply only when Type CP 25WB+ caulk or FB-3000 WT sealant is used. CP 25WB+ not suitable for use with CPVC pipes.)

C. Steel Collar — Nom 1, 2 or 3 in. (25, 51 or 76 mm) deep collar, dependent upon wrap strip width, with 1—1/4 in. (32 mm) wide by 2 in. (51 mm) long anchor tabs and min 1/2 in. (13 mm) long tabs to retain wrap strip layers. Coils of precut 0.016 in. (0.41 mm) thick (28 gauge) galv sheet steel available from wrap strip manufacturer. As an alternate, collar may be field—fabricated from min 0.016 in. (0.41 mm) thick (28 gauge) galv sheet steel in accordance with instruction sheet supplied by wrap strip manufacturer. Steel collar, with anchor tabs bent outward 90 deg, wrapped tightly around wrap strip layers with min 1 in. (25 mm) overlap at seam. Anchor tabs to be pressed tightly against floor or wall surface(s), and collar to be compressed around wrap strip layers using a min 1/2 in. (13 mm) wide by 0.028 in. (0.71 mm) thick stainless steel band clamp at the collar midheight. Two band clamps are required for 3 in. (76 mm) high collar on nom 6 in. (152 mm) diam pipe. As an alternate to the band clamps, 1 in. and 2 in. (25 and 51 mm) deep collars may be secured by a means No. 10 by 1/2 in. (13 mm) long sheet metal screws installed in the vertical axis at the center of the 1 in. (25 mm) overlap along the perimeter joint of the collar. A min of two and three screwe are required for 1 and 2 in. (25 and 51 mm) deep collars, respectively. Collar to be secured to floor or wall surface(s) with 1/4 in. (6 mm) diam by min 1-1/2 in. (38 mm) long steel expansion bolts, or equivalent, in conjunction with steel nuts and min 1-1/4 in. (32 mm) diam steel fender washers. Anchor bolts to be used with every other anchor tab or as described in the following which ever is greater. Two anchor bolts, symmetrically located, required for nom 1/2 in. (13 mm) to nom 2 in. (51 mm) diam pipes. Three anchor boits, symmetrically located, required for nom 2-1/2 to 3 in. (64 to 76 mm) diam pipes. Four anchor bolts, symmetrically located, required for norm 3-1/2 and 4 in. (89 to 102 mm) diam pipes. For 6 in. (152 mm) diam pipes, anchor bolts to be used with each anchor tab. Retainer tabs to be bent 90 deg toward pipe to lock wrap strip layers in position. D. Pipe Covering* -Nom 1 in. (25 mm) thick hollow cylindrical heavy density glass fiber units jacketed on the outside with an all service jacket. When required (see table), min 6 in. (152 mm) length of pipe covering installed around pipe at its egress from the steel collar (Item C) on the underside of floor or on both sides of wall. Pipe covering secured to pipe with steel wire ties spaced max 4 in. (102 mm) OC. Edge of pipe covering abutting steel collar to be sealed with a min 1/4 in. (6 mm) diam

bead of caulk or putty (Item B). See Pipe and Equipment Covering — Materials (BRCU) category in Building Materials Directory for names of manufacturers. Any pipe covering material meeting the above specifications and bearing the UL Classification Marking with a Flame Spread Index of 25 or less and a Smoke Developed Index of 50 or less may be used.

E. Foll Tape — When required (see tables), nom 4 in. (102 mm) wide, 3 mil thick aluminum tape installed around pipe prior to installation of wrap strip (Item 3A) or Firestop Device (Item 3F). Min one layer wrapped around pipe with top edge of tape flush with bottom surface of floor and extending downward. In walls, min one layer wrapped around pipe flush with both sides of wall and extending outward.

F. Firestop Device* - (Not Shown) - As an alternate to Items A and C when norm 1-1/2, 2, 3, 4 or 6 in. (38, 51, 76, 102 or 152 mm) diam nonmetallic pipes are used, a firestop device consisting of a sheet-steel split collar lined with intumescent material and provided with steel clips for attachment may be used. Firestop device to be installed on underside of floor or on both sides of wall in accordance with the accompanying installation instructions. The firestop device type to be used is dependent upon the wall of floor thickness, the pipe type and nom pipe diam, as tabulated below:

- (a) —Requires use of aluminum tape detailed in Item 3E. (b) — Requires use of pipe covering detailed in Item 3D.
- 3M COMPANY
- ++Bearing the UL Listing Mark
- *Bearing the UL Classification Mark

- (a) Requires use of aluminum tape detailed in item 3E. (b) --- Requires use of pipe covering detailed in (c) — For nom 6 in. (152 mm) diam pipe, 1 in. and 2 in., (25 and 51mm) wide wrap
- strips are "Stacked" to attain nom 3 in. (76 mm) wrap strip width. Each layer of wrap strip to be installed with butted seam with butted seams in successive layers staggered. Wrap strip layers temporarily held in position using aluminum foil tape, steel wire tie, or equivalent. In wall assemblies, the wrop strip is to be installed in
- the same manner used for floor assemblies. but it shall be installed symmetrically on both sides of the wall assembly. 3M COMPANY -FS-195+

PLUMBING SCHEDULES & DETAILS

SCALE AS SHOWN

ASSOCIATES

FIRE PROTECTION NOTES:

1. ALL WORK SHALL BE EXECUTED AND INSPECTED IN ACCORDANCE WITH ALL LOCAL AND STATE CODES, LAWS, ORDINANCES, RULES AND REGULATIONS APPLICABLE TO THE PARTICULAR CLASS OF WORK. IF, TO THE KNOWLEDGE OF THE CONTRACTOR, THE DRAWINGS AND SPECIFICATIONS ARE IN CONFLICT WITH THE ABOVE, HE SHALL PROMPTLY NOTIFY THE ENGINEER IN WRITING SO THAT ANY NECESSARY CHANGES CAN BE PROVIDED FOR IN HIS CONTRACT. IF THE CONTRACTOR PERFORMS ANY WORK WITHOUT NOTICE AS REQUIRED, HE SHALL BEAR ALL COSTS OF CORRECTIVE ACTION. 2. THE CONTRACTOR SHALL INCLUDE IN HIS QUOTATION ALL APPLICABLE SERVICE CHARGES, FEES, PERMITS, ROYALTIES, AND OTHER SIMILAR COSTS IN CONNECTION WITH THE WORK. OBTAIN PERMITS, AND REQUEST INSPECTIONS FROM AUTHORITY HAVING JURISDICTION. 3. INSTALL WORK IN LOCATIONS SHOWN ON DRAWINGS, UNLESS PREVENTED BY PROJECT CONDITIONS. FOR PURPOSES OF CLEARNESS AND LECTED DRAWINGS ARE ESSENTIALLY DIACRAMMATIC. AND ALTHOUGH SIZE AND LOCATION OF FOURPOSES OF CLEARNESS

SIMILAR COSTS IN CONNECTION WITH THE WORK. OBTAIN PERMITS, AND REQUEST INSPECTIONS FROM AUTHORITY HAVING JURISDICTION. 3. INSTALL WORK IN LOCATIONS SHOWN ON DRAWINGS, UNLESS PREVENTED BY PROJECT CONDITIONS. FOR PURPOSES OF CLEARNESS AND LEGIBILITY, DRAWINGS ARE ESSENTIALLY DIAGRAMMATIC, AND ALTHOUGH SIZE AND LOCATION OF EQUIPMENT ARE DRAWN TO SCALE WHENEVER POSSIBLE, THE CONTRACTOR SHALL REVIEW THE STRUCTURAL, ELECTRICAL, ARCHITECTURAL, FIRE PROTECTION, ETC. DRAWINGS AND DETERMINE AREAS OF INTERFERENCE. THE CONTRACTOR SHALL NOTIFY THE ARCHITECT/ENGINEER OF INTERFERENCE'S PRIOR TO FABRICATION OF PIPING.

4. THE DRAWINGS INDICATE REQUIRED SIZE AND POINTS OF TERMINATION OF PIPES, AND SUGGEST PROPER ROUTES OF PIPE TO CONFORM TO STRUCTURE, AVOID OBSTRUCTIONS AND PRESERVE CLEARANCES. HOWEVER, IT IS NOT INTENDED THAT DRAWINGS INDICATE ALL NECESSARY OFFSETS, AND IT SHALL BE THE WORK OF THIS SECTION TO INSTALL PIPING AND DUCTS IN SUCH A MANNER AS TO CONFORM TO STRUCTURE, AVOID ALL OBSTRUCTIONS, PRESERVE HEADROOM AND KEEP OPENINGS AND PASSAGEWAYS CLEAR WITHOUT FURTHER INSTRUCTION OR COST TO THE OWNER.

ALL NECESSARY OFFSETS, AND IT SHALL BE THE WORK OF THIS SECTION TO INSTALL PIPING AND OUCTS IN SUCH A MANNER AS TO CONFORM TO STRUCTURE, AVOID ALL OBSTRUCTIONS, PRESERVE HEADROOM AND KEEP OPENINGS AND PASSAGEWAYS CLEAR WITHOUT FURTHER INSTRUCTION OR COST TO THE OWNER. 5. CONTRACTOR SHALL GUARANTEE ALL WORK PERFORMED UNDER THIS CONTRACT TO BE FREE FROM DEFECTS IN MATERIALS AND WORKMANSHIP FOR A PERIOD OF ONE YEAR FROM DATE OF WITNESSED AND APPROVED STARTUP. 6. PROVIDE A COMPLETE FIRE PROTECTION SYSTEM TO SERVE THE SITE AND BUILDING BEGINNING AT THE POINT OF SERVICE. INCLUDE ALL FEES AND PERMITS, TAP CHARGE, ADDITIONAL SPRINKLERS AND OTHER COSTS IN THE BID AMOUNT. REFER TO THE NOTES WHICH ESTABLISH MINIMUM DENSITIES AND AREA COVERAGES AND GENERATE DETAILED SHOP DRAWINGS TO PROVIDE THIS PROTECTION USING A HYDRAULICALLY CALCULATED AND ENGINEERED SYSTEM. COMPLY WITH THESE DESIGN DOCUMENTS, NFPA 13, 24, 231, INCLUDING SEISMIC BRACING AND RESTRAINTS, THE AUTHORITIES HAVING JURISDICTION, AND THE OWNERS INSURANCE AGENCY REQUIREMENTS. ALLOW FOR THE MOST STRINGENT REQUIREMENT IN THE EVENT OF A CONFLICT. OBTAIN DIRECTION FROM THE ENGINEER IF THE MOST STRINGENT REQUIREMENT IS NOT EVIDENT.

7. TRANSPORT AND HANDLE PRODUCTS IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS. 8. STORE AND PROTECT PRODUCTS IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS, WITH SEALS AND LABELS INTACT AND LEGIBLE. 9. THE FIRE PROTECTION CONTRACTOR SHALL PREPARE FULL WORKING SHOP DRAWINGS AND HYDRAULIC CALCULATIONS AND SUBMIT THE SAME TO ALL APPLICABLE GOVERNING AUTHORITIES AND ENGINEER PRIOR TO PROCURMENT, FABRICATION OR ANY CONSTRUCTION. PARTIAL SUBMITTALS WILL NOT BE REVIEWED. SHOP DRAWING SUBMITTAL SHALL BE COMPLETE AND INCLUDE UNDERGROUND DRAWINGS, BUILDING SPRINKLER DRAWINGS, MATERIAL CUT SHEETS AND HYDRAULIC CALCULATIONS. FIRE PROTECTION CONTRACTOR SHALL OBTAIN APPROVAL FROM THE SAME PRIOR TO ANY CONSTRUCTION ACTIVITIES. SHOP DRAWINGS INCLUDING UNDERGROUND AND BLOG DRAWINGS.

APPROVAL FROM THE SAME PRIOR TO ANY CONSTRUCTION ACTIVITIES. SHOP DRAWINGS INCLUDING UNDERGROUND AND BLDG DRAWINGS, HYDRAULIC CALCULATIONS AND MATERIALS SHALL BE SUBMITTED IN ONE PACKAGE. PARTIAL SUBMITTALS WILL NOT BE REVIEWED. SUBMITTALS SHALL BE PROJECT SPECIFIC INDICATING THE INTENDED MODEL NUMBERS, MATERIALS, AND EQUIPMENT TAGS. 10. DEMONSTRATE OPERATION AND MAINTENANCE OF PRODUCTS TO OWNER'S PERSONNEL ONE WEEK PRIOR TO DATE OF FINAL INSPECTION.

11. EXECUTE FINAL CLEANING PRIOR TO FINAL PROJECT ASSESSMENT. 12. PROVIDE SUPPORT AND EQUIPMENT REQUIRED TO CONTROL EXPANSION AND CONTRACTION OF PIPING. PROVIDE LOOPS, PIPE OFFSETS, AND SWING JOINTS, OR EXPANSION JOINTS WHERE REQUIRED.

13. FIRE PROTECTION PIPING 2³" AND LARGER SHALL BE MINIMUM SCHEDULE 10 STEEL. 14. FIRE PROTECTION PIPING 2[®] AND SMALLER SHALL BE SCHEDULE 40 STEEL. 15. SLEEVES SHALL BE INSTALLED WHERE FIRE PROTECTION PIPING PENETRATES STRUCTURE.

16. PENETRATIONS THROUGH RATED WALLS OR FLOORS SHALL BE SEALED PER APPROVED U.L. METHOD TO MAINTAIN RATING OF THE WALL OR FLOOR. 17. ALL MATERIALS USED IN THE FIRE PROTECTION SYSTEM SHALL BE U.L. LISTED.

18. ALL FIRE HOSE THREADS SHALL CONFORM TO THE LOCAL FIRE DEPARTMENT REQUIREMENTS. 19. PROVIDE LABELS, TAGS, AND SIGNS FOR ALL VALVES, TEST PIPES, DRAINS, AND OTHER SYSTEM COMPONENTS. 20. ALL CONTROL VALVES SHALL BE EQUIPPED WITH TAMPER SWITCHES AS REQUIRED.

21. PROVIDE INSPECTORS TEST TEES AT ALL POINTS IN SYSTEM WHERE REQUIRED BY NFPA. PROVIDE DRAINS FOR ALL TEST TEES. LOCATE AT HEIGHT REQUIRED BY CODE. FIRE PROTECTION CONTRACTOR SHALL ARRANGE WITH PLUMBING CONTRACTOR FOR OPENINGS IN THE PLUMBING SYSTEM AND SHALL INCLUDE ANY COSTS FOR THE SAME IN HIS BID. 22. FIRE PROTECTION CONTRACTOR SHALL AVOID ALL HVAC, ELECTRICAL, PLUMBING, AND STRUCTURAL ELEMENTS, ETC. AS REQUIRED FOR THE PROPER INSTALLATION OF THE FIRE PROTECTION SYSTEM. 23. UPON COMPLETION OF CONSTRUCTION, FURNISH THE OWNER WITH ONE COMPLETE, REPRODUCIBLE, AS-BUILT DRAWINGS SHOWING THE ACTUAL INSTALLED CONDITION OF THE FIRE PROTECTION SYSTEM.

24. PROVIDE SEISMIC BRACING FOR THE FIRE PROTECTION SYSTEM AS REQUIRED BY CODE. 25. THE FIRE PROTECTION CONTRACTOR SHALL PERFORM HIS OWN FLOW TEST AS A BASIS FOR HIS HYDRAULIC CALCULATIONS. FLOW TEST SHALL BE WITNESSED BY THE ENGINEER. 26. ALL PIPING FROM THE POINT OF SERVICE INCLUDING THE UNDERGROUND MAIN SHALL BE INSTALLED BY A SPRINKLER CONTRACTOR LICENSED TO PERFORM FIRE PROTECTION WORK IN THE PROJECT STATE. UNLESS OTHERWISE SHOWN ON THE DRAWINGS, THE POINT OF SERVICE SHALL BE THE TAP AT THE PUBLIC MAIN.

SERVICE SHALL BE THE TAP AT THE PUBLIC MAIN. 27. WET SYSTEMS SHALL NOT BE INSTALLED IN AREAS SUBJECT TO FREEZING. PROVIDE DRY TYPE PROTECTION FOR UNHEATED AREAS SUBJECT TO FREEZING. ALL PIPING IN A DRY SYSTEM SHALL BE GALVANIZED. 28. VERIFY ALL FLOOR PLANS AND WALL RATINGS WITH ARCHITECTURAL DRAWINGS. ALL SPRINKLER PIPING SHALL BE CONCEALED IN FINISHED AREAS. WHERE STRUCTURE OR OTHER CONDITIONS REQUIRE SPRINKLER PIPING TO BE INSTALLED IN FINISHED AREAS, OBTAIN

APPROVAL FROM ENGINEER AND/OR ARCHITECT PRIOR TO INSTALLATION. 29. HYDROSTATICALLY TEST THE FIRE PROTECTION SYSTEM IN ACCORDANCE WITH NFPA. 30. ALL SPRINKLER HEADS SHALL BE "CENTER TILE" IN AREAS WITH LAY-IN CEILINGS.

31. EXTERIOR FIRE PROTECTION PIPING SHALL BE C-900 PVC OR CLASS 50 DUCTILE IRON AS ALLOWED BY LOCAL CODE. 32. THE LOCATION AND QUANTITY OF HEADS SHALL COMPLY WITH ALL CODE, DRAWING NOTATIONS, AHJ AND ENGINEER REQUIREMENTS. ADDITIONAL HEADS WHICH ARE NOT SHOWN MAY BE REQUIRED TO COMPLETELY PROTECT THE PARTITIONED AREAS OF THIS PROJECT: PROVIDE ADDITIONAL HEADS IF THIS IS NECESSARY AT NO INCREASE TO CONTRACT AMOUNT. THE FURR DOWNS AND OTHER CEILING OBSTRUCTIONS WITH COMPLETE COVERAGE OF SPRINKLERS SHALL BE VERIFIED IN THE FIELD AND ADDITIONAL SPRINKLERS ADDED AS REQUIRED AT NO CHANGE IN THE CONTRACT AMOUNT. ARM OVER AND DOWN CENTER OF NEW CEILING TILE WHEREVER POSSIBLE NO LESS THAN 6" FROM CEILING GRID WHERE A FULL TILE IS NOT IN THE PROTECTED SPACE. PROTECT SPRINKLER HEADS FROM FIELD PAINTING. REFER TO COMPLETE DRAWING SET AND ALLOW FOR COMPLETE COVERAGE IN ANY SPACES SUCH AS DRESSING ROOMS AND SMALLER SPACE THAT MAY NOT BE REFLECTED ON THESE DRAWINGS. FIELD VERIFY OVERHEAD DOOR CONFIGURATION AND PROVIDE COVERAGE UNDER DOORS, IN RAISED POSITION, AS REQUIRED BY CODE. 33. ANY PIPING INSTALLED BELOW PARKING AREAS, ROADWAYS, CONCRETE SLABS, DRIVEWAYS OR ANY HEAVY TRAFFIC AREAS SHALL BE BEDDED AND BACKFILLED WITH #57 LIMESTONE.

TOLCO FIG. 909 NO-THREAD SWIVEL SWAY BRACE ATTACHMENT - BRACE PIPE TOLCO FIG. 909 TOLCO FIG. 909 NO-THREAD SWIVEL SWAY -NO-THREAD SWIVEL SWAY BRACE ATTACHMENT BRACE ATTACHMENT TOLCO FIG. 1000 "FAST CLAMP" SWAY BRACE ATTACHMENT BRACE PIPE--BRACE PIPE -TOLCO FIG. 1000 "FAST SPRINKLER PIPE CLAMP" SWAY BRACE ATTACHMENT (2 REQ'D) 4-Way Sway Brace Detail **@** Top Of Risers <u>2-Way Lateral</u> <u>Sway Brace Detail</u> NTS NO SCALE

FIRE PROTECTION DETAILS

SCALE AS SHOWN

NO SCALE

SEISMIC BRACING NOTES:

1) INSTALL FLEXIBLE COUPLINGS ON BOTH SIDES OF CONCRETE OR MASONRY WALLS WITHIN 12" OF THE WALL SURFACE, UNLESS CLEARANCE IS PROVIDED PER NFPA 13.

2) CLEARANCE SHALL BE PROVIDED AROUND ALL PIPING EXTENDING THROUGH WALLS, FLOORS, PLATFORMS AND FOUNDATIONS.
3) WHERE PIPE PASSES THROUGH HOLES IN PLATFORMS, FOUNDATIONS, WALLS OR FLOORS, THE HOLES SHALL BE SIZED SUCH THAT THE DIAMETER OF THE HOLES IN NOMINALLY 2" LARGER THAN THE PIPE FOR

 NOMINAL TO 3" NOMINAL AND 4" LARGER THAN THE PIPE FOR 4" NOMINAL AND LARGER.
 A) NO CLEARANCE IS REQUIRED FOR PIPING PASSING THROUGH GYPSUM BOARD OR EQUALLY FRANCIBLE CONSTRUCTION THAT IS NOT REQUIRED TO HAVE A FIRE RESISTANCE RATING.

5) NO CLEARANCE IS REQUIRED IF FLEXIBLE COUPLINGS ARE LOCATED WITHIN 12" OF EACH SIDE OF A WALL, FLOOR, PLATFORM OR FOUNDATION.

6) LATERAL AND LONGITUDINAL SWAY BRACING IS REQUIRED ON ALL FEED AND CROSS MAINS REGARDLESS OF SIZE.
7) LATERAL SWAY BRACING SHALL BE INSTALLED AT A MAX. OF 40'-0" ON CENTER.

8) LONGITUDINAL SWAY BRACING SHALL BE INSTALLED AT A MAX. OF 80'-0" ON CENTER.

9) PROMDE RETAINING STRAPS AT ALL C-TYPE BEAM CLAMPS.

LIGHTING FIXTURE SCHEDULE

RER	CATALOG NUMBER	LAMP	VOLTAGE	INPUT WATTS	MOUNTING	FINISH	REMARKS
	57R 24 CC L2 40 1C 1 D	6250 LUM. LED	277V	50W	RECESSED IN A.C.T. CEILING	WHITE	2X4 RECESSED LED VANDAL RESISTANT TROFFER, STEEL DOOR/HOU PRISMATIC POLY, LENS, TAMPER RESIST, FASTENERS
	57R 24 CC L2 40 1C 1 D UN EL2	6250 LUM. LED	277V	50W	RECESSED IN A.C.T. CEILING	WHITE	2X4 RECESSED LED VANDAL RESISTANT TROFFER, STEEL DOOR/HOU PRISMATIC POLY. LENS, TAMPER RESIST. FASTENERS, EMER BATTER
	57R 22 CC L2 40 1C 1 D UN EL1	3125 LUM. LED	277V	25₩	RECESSED IN A.C.T. CEILING	WHITE	2X2 RECESSED LED VANDAL RESISTANT TROFFER, STEEL DOOR/HOU PRISMATIC POLY. LENS, TAMPER RESIST. FASTENERS, EMER BATTER
	CPANL 2X4 60LM 40K	6000 LUM. LED	277V	52W	RECESSED IN ACOUSTIC TILE	WHITE	2'X4' RECESSED FLAT PANEL
	ELED EM BZ MB HX	1050 LUM. LED	277V		WALL MOUNT ABOVE DOOR	BRONZE	EXTERIOR LED EMERGENCY LIGHT, VANDAL RESISTANT FASTENERS, INTERNAL HEATER, POLYCARBONATE LENS
	CPANL 2X2 AL01 SWW7 M4 ILBLP CP10 HE SD A	3300 LUM. LED	277V	38.8W	RECESSED IN ACOUSTIC TILE	WHITE	2'X2' RECESSED FLAT PANEL; SWITCHABLE LUMEN & COLOR WITH EMERGENCY BATTERY FIELD—INSTALLATION KIT
	CSS L48 ALO3 MVOLT 40K	5000 LUM. LED	277V	43.9W	SURFACE	WHITE	4 FT LED STRIP LIGHT W/ FROSTED DIFFUSER
	MWPQ-F-1X25-U-4K-Z-BUC	3804 LUM LED	277V	29W	WALL MOUNT • 8'-0" ABV FINISHED GRADE	DARK BRONZE	LED WALL PACK, EMER BATTERY
	LV S W 1 R 120/277 EL N SD	LED	277V	27₩	BACK MOUNT	WHITE WITH RED LETTERS	SINGLE SIDED LED EXIT SIGN WITH DIRECTIONAL ARROW KNOCKOUTS SELF-DIAGNOSTICS. VANDAL RESISTANT

2 KEY PLAN E1.1 SCALE: 1" = 40'-0"

1. THESE FIXTURE TYPES SHALL BE A SELF-CONTAINED EMERGENCY UNIT COMPLETE WITH BATTERIES, CHARGERS AND TRANSFER MECHANISMS AND SHALL BE CONNECTED TO UNSWITCHED CONDUCTORS. THESE FIXTURES SHALL BE CONNECTED TO THE CIRCUIT SERVING NORMAL POWERED LIGHTING FIXTURES IN THE SAME SPACE PER N.E.C. #700.12(F).

2. SEE SEISMIC DETAIL. LAY-IN FIXTURES SHALL BE SUPPORTED WITH A MINIMUM OF FOUR (4) INDEPENDENT WRES SEPARATE FROM CEILING SUPPORT WRES. FURNISH DOWNLIGHTS ("CAN LIGHTS") WITH A MINIMUM OF TWO (2) INDEPENDENT WRES SEPARATE FROM CEILING SUPPORT WRES. 3. FIXTURE TYPES "#E" ARE THE SAME AS FIXTURE TYPES "#", RESPECTIVELY, EXCEPT WITH SELF-CONTAINED EMERGENCY BATTERY BACKUP. PULL AN UNSWITCHED CONDUCTOR TO THE SELF-CONTAINED EMERGENCY BATTERY UNIT TRANSFER MECHANISM. SEE N.E.C. #700.12(F).

NOTES FOR ALL FIXTURES AS APPLICABLE:

• ALL FIXTURES SHALL BE RATED AT 4000% UNLESS OTHERWISE SPECIFIED OR NOTED.

^{\$} 2P	2 BUTTON, DUAL CHANNEL, LINE VOLTAGE ON/OFF WALL CONTROL WITHLIGHT/FAN CONTROLS. EQUAL TO SENSORSWITCH #WSX 2P FAN	44" TO BTM AFF
^{\$} N2D	6 BUTTON, DUAL CHANNEL, ON/OFF WALL CONTROL W/ DIMMING EQUAL TO nLIGHT ∯nPODMA 2P DX	44" TO BTM AFF
\$ oc	WALL MOUNTED DUAL—TECHNOLOGY OCCUPANCY SENSOR WITH ON/OFF OVERRIDE SWITCH. EQUAL TO SENSORSWITCH ∯WSX—PDT.	44" TO BTM. A.F.F.
\$ 0CD	WALL MOUNTED DUAL—TECHNOLOGY OCCUPANCY SENSOR WITH ON/OFF SWITCH & 0—10V DIMMING. EQUAL TO SENSORSWITCH #WSX—PDT—D.	44" TO BTM. A.F.F.
() CSR	CEILING MOUNTED, DUAL—TECHNOLOGY, STANDARD RANGE, LINE VOLTAGE OCCUPANCY SENSOR. EQUAL TO SENSOR SWITCH #CMR—9—PDT	CEILING
(C)	CEILING MOUNTED, DUAL-TECHNOLOGY, EXTENDED RANGE, LOW VOLTAGE OCCUPANCY SENSOR. EQUAL TO nLIGHT #nCM PDT 10 RJB	CEILING
J _{PD}	POWER PACK WITH ONE 16A RELAY CONTACT AND 0−10V DIMMING AUTO ON TO 50%. EQUAL TO nLIGHT ∯nPP16−D−PA	ABOVE CEILING
OSLCS-#	OCCUPANCY SENSOR LIGHTING CONTROL SCHEMATIC SEE REFERENCED NUMBER DETAIL	

RATED WALL LEGEND HOUR FIRE PARTITION

CONNECT NEW FIRE ALARM SYSTEM DEVICES INTO THE EXISTING SYSTEM. FIELD COORDINATE ALL REQUIREMENTS FOR A COMPLETE FUNCTIONAL FIRE ALARM SYSTEM FOR THE FACILITY PRIOR TO BID. THE FINAL PRODUCT SHALL BE A SINGLE SYSTEM WITH A SINGLE CONTROL POINT AND SINGLE MONITORING POINT THAT MEETS ALL CURRENT CODES.

NOTE: THESE PLANS ARE INTENDED TO SHOW MINIMUM DESIGN INTENT FOR FIRE ALARM. IT IS THE CONTRACTOR'S RESPONSIBILITY TO PROVIDE A COMPLETE, CODE-COMPLIANT, TESTED OPERATING, APPROVED SYSTEM.

FIRE ALARM NOTE: ALL REQUIRED DOCUMENTATION REGARDING THE DESIGN OF FIRE DETECTION, ALARM, AND COMMUNICATIONS SYSTEMS AND THE PROCEDURES FOR MAINTENANCE, INSPECTION, AND TESTING OF FIRE DETECTION, ALARM, AND COMMUNICATION SYSTEMS SHALL BE MAINTAINED AT AN APPROVED, SECURED LOCATION FOR THE LIFE OF THE SYSTEM THE LIFE OF THE SYSTEM.

FIF	FIRE ALARM DEVICE LEGEND:					
S	Smoke detector					
F	HORN/STROBE. CD LEVEL AS INDICATED					
Ē	STROBE. CD LEVEL AS INDICATED					
ALL	ALL DEVICES SHALL BE VANDAL RESISTANT					

SEE DETAIL 2, THIS SHEET, FOR LAYOUT AND POWER REQUIREMENTS FOR MECHANICAL PLATFORM ABOVE.

- KEYED CONSTRUCTION NOTES:
- USE STEEL, PENAL-TYPE, VANDAL RESISTANT COVERS WITH TAMPER PROOF FASTENERS.
- 2 FURNISH PENAL-TYPE, VANDAL RESISTANT COVERS FOR FA DEVICES IN THESE ROOMS.
- $\overline{3}$ connect exhaust fan to 2-pole switch. See detail on sheet e1.1. CIRCUIT NP2-10.
- COORDINATE WITH DIVISION 23 WHEN LOCATING DISCONNECT. VERIFY DISC. LOCATION ADHERES TO NEC 110.26 WORKING CLEARANCES.
- 5 MOUNT RECEPTACLE FOR WATER HEATER ON PLATFORM. COORDINATE EXACT LOCATION WITH DIVISION 22 PRIOR TO ROUGH-IN.
- $\langle 6 \rangle$ coordinate with DIV 23 FOR FURNACE ELECTRICAL REQ'S & LOCATIONS.
- MOUNT TRANSFORMER ON PLATFORM. SEE ONE-LINE. (8) MOUNT DEVICE ABOVE COUNTER PER DETAIL
- 9 PROVIDE A DEDICATED 120V CIRCUIT FOR FIRE/SMOKE DAMPER. PROVIDE INTERLOCK TO EXISTING FIRE ALARM SYSTEM.

RATED WALL LEGEND

ELECTRICAL SPECIAL SYSTEMS MATRIX								
TRACT SYSTEM CRIPTION	DEVICE BOXES & RACEWAYS W/ PULL STRINGS	CABLING INSTALLATION & TERMINATIONS	RACKS, PATCH PANELS, TERMINATION BLOCKS, ETC.	System Equipment				
ALARM SYSTEM	CFCI	CFCI	CFCI	CFCI				
NE SYSTEM - CAT 6	CFCI	CFCI (2)	CFCI	CFCI				
A SYSTEM - CAT 6	CFCI	CFCI (2)	CFCI	CFCI				
O SURVEILLANCE SYSTEM	CFCI	CFCI (1)	CFCI (1)	CFCI (1)				
ESS CONTROL SYSTEM	CFCI	CFCI (1)	CFCI (1)	CFCI (1)				
URITY SYSTEM	CFCI	CFCI (1)	CFCI (1)	CFCI (1)				

CFCI - CONTRACTOR FURNISHED, CONTRACTOR INSTALLED - OWNER FURNISHED, CONTRACTOR INSTALLED - OWNER FURNISHED, OWNER INSTALLED OFCI OFOI NIC - NOT IN CONTRACT

(1) TO BE FURNISHED UNDER G.C. CONTRACT BY DEC/ESSC SUBCONTRACTOR. E.C. SHALL FURNISH AND INSTALL ALL REQUIRED ROUGH-INS OF BOXES AND CONDUITS. (2) CONTRACTOR SHALL CERTIFY CABLE TERMINATIONS AND PROVIDE A TEST REPORT TO OWNER.

COMMUNICATIONS WIRING LEGEND							
DISTRIBUTION CABLE TYPE	TERMINATION TYPE						
CATEGORY 6, 24 AWG, 4-PAIR NON-PLENUM DATA CABLE	CATEGORY 6 JACK ON PATCH PANEL						
CATEGORY 6, 24 AWG, 4-PAIR NON-PLENUM DATA CABLE	CATEGORY 6 JACK ON PATCH PANEL						
-NUMBER REPRESENTS QUANTITY OF CABLES TO BE FURNISHED AND INSTALLE	D						
NOTES FOR COMMUNICATIONS MATE	RIALS						
DICE/DATA CABLES AND CABLING COMPONENTS SHALL BE A MINIMUM OF (TCATIONS. LINK TO BE TESTED/CERTIFIED WITH A LEVEL 2 CABLE TESTER	CATEGORY 6. SEE . ALL DATA CABLES						

SPECIFICATIONS. LINK TO BE TESTED/CERTIFIED WITH A LEVEL 2 CABLE TESTER. ALL DATA CABLES SHALL BE TERMINATED ON A JACK AT THE WORKSTATION LOCATION AND AT A PATCH PANEL AT THE DISTRIBUTION LOCATION.

2. ALL JACKS SHALL BE ATTACHED TO A FACEPLATE. FACEPLATE COLOR SELECTED BY ARCHITECT -JACK COLORS PER MADISON SCHOOLS IT DEPARTMENT. 3. ALL CABLES, EXCEPT IN DISTRIBUTION ROOMS, SHALL BE CONCEALED IN WALL OR ABOVE CEILINGS AND IN CONDUIT OR CABLE TRAY. CABLES SHALL NOT BE ATTACHED TO CONDUIT(S) FOR SUPPORT OR ALLOWED TO SAG ONTO CEILING TILE.

4. FIRE WALL PENETRATIONS SHALL UTILIZE SELF-SEALING SLEEVES. FIRE STOP AS REQUIRED. 5. IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO LABEL EACH VOICE/DATA CONNECTION WITH A MECHANICALLY GENERATED LABEL – EACH WALL PLATE SHALL BE LABELED ACCORDINGLY. <u>DO NOT</u> HAND WRITE LABEL.

6. MAXIMUM LENGTH OF RUN FOR DATA CABLING IS 100 METERS (328'-0"). FIBER RUNS SHALL BE NO LONGER THAN 1500 FEET.

7. ALL PATCH PANELS SHALL BE CATEGORY 6. (24 OR 48 PORT ONLY)

8. RELAY RACKS/CABINETS SHALL BE GROUNDED TO SYSTEM GROUND. 9. THERE SHALL BE NO SPLICES IN THE FIBER OPTIC CABLING.

10. FURNISH AND INSTALL PULL STRINGS IN ALL COMMUNICATIONS CONDUITS.

11. PROVIDE PATCH PANEL QUANTITIES TO ALLOW FOR 20% FUTURE DISTRIBUTION.

SPECIFICATIONS/NOTES FOR ACCESS

CONTROL SYSTEM

. DOOR READERS SHALL USE A PROXIMITY STYLE READER. 2. SYSTEM WILL ONLY REQUIRE ONE ZONE LEVEL ACCESS.

. SYSTEM SHALL UTILIZE A WEB-BASED INTERFACE FOR MONITORING AND CONFIGURATION.

SYSTEM MAY BE IP BASED OR UTILIZE SOME OTHER SYSTEM ARCHITECTURE AT CONTRACTOR'S CHOOSING.

CONTRACTOR SHALL FURNISH AND INSTALL ALL BOXES, CONDUITS, CABLING, EQUIPMENT, SOFTWARE, & PROGRAMMING REQUIRED FOR A FULLY OPERATIONAL SYSTEM.

. CONTRACTOR SHALL FURNISH OWNER TRAINING SESSION.

. ALL CABLING SHALL BE CONCEALED IN CONDUIT.

8. SYSTEM SHALL BE ABLE TO CONTROL AT LEAST 8 DOORS AND BE CAPABLE OF FUTURE EXPANSION. SYSTEM SHALL BE EQUAL TO HONEYWELL NETAXS-4 WITH A DELUXE STANDARD ENCLOSURE AND OMNIPROX SERIES READERS.

SECURITY SYSTEM LEGEND

- **E** <]
- <u>|> PT |</u>___
- #K315
- DLA
- IC SEE INTERCOM DETAIL FOR ROUGH-IN.

<u>NOTE:</u> Electrical contractor shall coordinate with owner and dec/essc for Equipment mounting heights, exact locations and any other coordination issues.

PANELBOARD NAME:		VOI	TAGE:	480	/277				
NL2		F	HASE:	3					
LOCATION:	WIRES: 4								
CLASSROOM CLOSET		BU\$,	AMPS:	100			A.I.C.	10,00	ю
FED FROM:						_			
EXISTING SWITCHBOARD 'DPH'		CON	NECTE) KVA					
CIRCUIT DESCRIPTION	LTG	REC	COOL	HEAT	EQ	AMP/POLE	WIRE	ССТ	PH,
			2					1	,
CONDENSING UNIT CU-1			2			15/3**		3	. I
			2					5	
LIGHTS - INTERVIEW, SALLYPORT	0.2					20/1		7	
LIGHTS - OFFICES, RESTROOMS	0.5					20/1		9	
LIGHTS - CLASSROOM	0.3					20/1		11	
SPARE						20/1		13	1
SPARE						20/1		15	
SPARE						20/1		17	
SPARE						20/1		19	
SPARE						20/1		21	
SPARE						20/1		23	
								25	
								27	
								29	
** SHALL BE AN HACR BREAKER									
CONNECTED KVA	LOAD		DEMA	NDED	KVA LO	DAD			
LIGHTING	1	125%	1.25	(PER N	IEC TA	BLE 220.12))	-	CON
RECEPTACLE	6.6	50%	6.6	(50% [ND ABOVE :	10KVA))	10
HVAC - COOLING	15.2	100%	15.2	(ucc •			COOL		6
HVAC - HEATING	0	0%	0	(USE L	AKGEF	COF HEAT/	COOL)		6
EQUIPMENT	0.4	100%	0.4					1	

				I	MAIN:	100	MLO		FEATURES:
			N						
			G						
		13	SOLATED G						
PHASE	ССТ	WIRE	AMP/POLE	LTG	REC	COOL	HEAT	EQ	CIRCUIT DESCRIPTION
А	2					2			
В	4		15/3**			2			CONDENSING UNIT CU-2
С	6					2			
А	8				3	3.1			
В	10		60/3		1.8	0.1		0.2	TRANSFORMER XNP2
С	12				1.8			0.2	
А	14		20/1						SPARE
В	16		20/1						SPARE
C	18		20/1						SPARE
А	20		20/1						SPARE
В	22		20/1						SPARE
С	24		20/1						SPARE
А	26								
в	28								
С	30								
ONNECT	ED KV	А/РНА	SE						
10.3	PHAS	E A							TOTAL LOADS
6.6	PHAS	SE B						23.2	TOTAL CONNECTED KVA
6.3	PHAS	E C						23.45	TOTAL DEMAND KVA
	•		P/	ANEL D	ESIGN	AMPS	100	28.21	TOTAL DEMAND AMPS

PANELBOARD NAME:		VO	TAGE:	208	/120									MAIN:	100	MCB		FEATURES:
NP2		F	HASE:	3	,								MOUN	ITING:	SURF/	ACE		
LOCATION: WIRES: 4											N	IEUTRA	L BUS:	COPP	ER-100	%		
CLASSROOM CLOSET BUS AMPS: 100					A.I.C.	10,00	ю			G	ROUN	D BUS:	COPP	ER				
FED FROM:												ISOLATED G	ROUN	D BUS:	NO			
NL2-THRU XNP2		CON	NECTE) KVA		1								CONI	NECTE) KVA		
CIRCUIT DESCRIPTION	LTG	REC	COOL	HEAT	EQ	AMP/POLE	WIRE	ССТ	PHASE	ССТ	WIR	E AMP/POLE	LTG	REC	COOL	HEAT	EQ	CIRCUIT DESCRIPTION
RECPTS - INTERVIEW, SALLYPORT		0.7				20/1		1	А	2		20/1		0.9				RECEPTS - OFFICE, HALL
RECPTS - OFFICE		0.7	[20/1		3	В	4	<u> </u>	20/1		0.9				RECEPTS - RR, EXT, ELEC
RECPTS - OFFICE		0.7				20/1		5	с	6		20/1		0.6				RECEPTS - CLASSROOM
REFRIGERATOR		0.8				20/1*		7	A	8		20/1		0.6				RECEPTS - CLASSROOM
RECPT - COUNTER		0.2				20/1		9	В	10		20/1			0.1			RR EXHAUST FANS
RECPTS - CLASSROOM		0.5				20/1		11	с	12		20/1					0.2	RECEPT - GAS WATER HEATER GWH-1
FURNACE F-1			1.5			20/1		13	А	14		20/1			1.6			FURNACE F-2
FIRE/SMOKE DAMPERS					0.2	20/1#		15	В	16		20/1						SPARE
SPARE			I			20/1		17	C	18	:	20/1						SPARE
SPARE						20/1		19	А	20		20/1						SPARE
SPARE						20/1		21	В	22		20/1						SPARE
SPARE						20/1		23	с	24		20/1						SPARE
								25	А	26								
								27	В	28								
								29	С	30	l							
* SHALL BE A GFCI BREAKER																		
# SHALL BE A RED FIREALARM BREA	KER W	/ITH LC	CKING	MECH	ANISN	А												
CONNECTED KVA	LOAD		DEMA	NDEDI	KVA LO	DAD												
LIGHTING	0	125%	0	(PER N	IEC TA	BLE 220.12))		CONNECT	ED KV	/A/PH	ASE						
RECEPTACLE	6.6	50%	6.6	(50% E	DEMA	ND ABOVE :	10KVA)	6.1	PHA:	SE A							TOTAL LOADS
HVAC - COOLING	3.2	100%	3.2	/LICE I			ററവ		2.1	PHA:	SE B						10.2	TOTAL CONNECTED KVA
HVAC - HEATING	0	0%	0	NOSEL	ANGEI	N OF HEAT/	COULJ		2	PHAS	SE C						10.2	TOTAL DEMAND KVA
EQUIPMENT	0.4	100%	0.4							_		<u> </u>	ANEL C	ESIGN	AMPS	100	28.31	TOTAL DEMAND AMPS

LBÓARD NAME:		VOL	.TAGE:	208	/120								I	MAIN:	100	MCB		FEATURES:
NP2		Ρ	HASE:	3									MOUN	ITING:	SURFA	CE		
ΠΟN:		V	VIRES:	4								N	IEUTRA	L BUS:	COPPE	ER-100%	%	
CLASSROOM CLOSET	BUS AMPS: 100				A.I.C.	10,00	ю			G	ROUN	D BUS:	COPPE	ER				
ROM:											Ľ	OLATED G	ROUN	D BUS:	NO			
NL2-THRU XNP2		CONN	VECTED	KVA									CONNECTED KVA					
IT DESCRIPTION	LTG	REC	COOL	HEAT	EQ	AMP/POLE	WIRE	CCT	PHASE	ССТ	WIRE	AMP/POLE	LTG	REC	COOL	HEAT	EQ	CIRCUIT DESCRIPTION
S - INTERVIEW, SALLYPORT		0.7				20/1		1	А	2		20/1		0.9				RECEPTS - OFFICE, HALL
'S - OFFICE		0.7				20/1		3	В	4		20/1		0.9				RECEPTS - RR, EXT, ELEC
S - OFFICE		0.7				20/1		5	С	6		20/1		0.6				RECEPTS - CLASSROOM
GERATOR		0.8				20/1*		7	А	8		20/1		0.6				RECEPTS - CLASSROOM
- COUNTER		0.2				20/1		9	В	10		20/1			0.1			RR EXHAUST FANS
S - CLASSROOM		0.5				20/1		11	с	12		20/1					0.2	RECEPT - GAS WATER HEATER GWH-1
ACE F-1			1.5			20/1		13	А	14		20/1			1.6			FURNACE F-2
MOKE DAMPERS					0.2	20/1#		15	В	16		20/1						SPARE
						20/1		17	С	18		20/1						SPARE
						20/1		19	А	20		20/1						SPARE
						20/1		21	В	22		20/1						SPARE
						20/1		23	С	24		20/1						SPARE
								25	А	26								
								27	В	28								
								29	С	30								
LL BE A GFCI BREAKER																		
LL BE A RED FIREALARM BREA	KER W	'ITH LO	CKING	MECH/	ANISM∕	l												
CONNECTED KVA	LOAD		DEMA	NDED	(VA LC)AD												
LIGHTING	0	125%	0	(PER N	EC TA	BLE 220.12)	ł		CONNECT	ED KV	′А/РНА	SE						
RECEPTACLE	6.6	50%	6.6	(50% C	EMAN	ID ABOVE :	LOKVA)		6.1	PHAS	SE A					_		TOTAL LOADS
HVAC - COOLING	3.2	100%	3.2	LICET	አዕርርሮ		~~~·\		2.1	PHAS	SE B						10.2	TOTAL CONNECTED KVA
HVAC - HEATING	0	0%	0	LOSE L	ANGER	OF REAL/			2	PHAS	SE C						10.2	TOTAL DEMAND KVA
EQUIPMENT	0.4	100%	0.4									<u> </u>	ANEL D	ESIGN	AMPS	100	28.31	TOTAL DEMAND AMPS

PANEL SCHEDULES E4.1 SCALE: NONE

CLASSROOM ADDITION ----

Ν 3 KEY PLAN E4.1 SCALE: 1" = 20'-0"

	DESCRIPTION		ITEL	DESCRIPTION		
IIEM		MOUNTING	IIEM			MOUNTING
X	LIGITTING LED LIGHTING FIXTURE AS SCHEDULED - SUBSCRIPT	CEILING				44* TO
	INDICATES CIRCUIT NUMBER AND SWITCH DESIGNATION.		\$			BTM AFF
	BATTERY BACKUP AS SCHEDULED		^{\$} 3			BTM AFF
머	AS SCHEDULED	WALL	^{\$} 4	4-way wall toggle switch		44" TO BTM AFF
	LED LIGHTING STRIP FIXTURE AS SCHEDULED	CEILING	^{\$} Р	RED PILOT LIGHT WALL TOGGLE SWIT	CH	44" TO BTM AFF
西	EMERGENCY LIGHTING UNIT WITH SELF-CONTAINED BATTERY AS SCHEDULED	WALL	\$ oc	WALL MOUNTED DUAL-TECHNOLOGY O OVERRIDE SWITCH. EQUAL TO SENSO	DCCUPANCY SENSOR WITH ON/OFF DRSWITCH #WSX-PDT.	44" TO BTM. A.F.F.
N	WALL MOUNTED EMERGENCY EXIT SIGN AS SCHEDULED REFER TO DIRECTIONAL ARROWS ON DWGS. FOR CHEVRON LOCATIONS	WALL	\$ 0CD	WALL MOUNTED DUAL-TECHNOLOGY C SWITCH & 0-10V DIMMING. EQUAL	DCCUPANCY SENSOR WITH ON/OFF TO SENSORSWITCH #WSX-PDT-D-ASI	44" TO BTM. A.F.F.
8	CEILING MOUNTED EMERGENCY EXIT SIGN AS SCHEDULED REFER TO DIRECTIONAL ARROWS ON DWGS, FOR CHEVRON LOCATIONS	CEILING	OSLCS-#	<u>O</u> CCUPANCY <u>SENSOR</u> LIGHTING <u>C</u> ONTR SEE REFERENCED NUMBER DETAIL	ROL <u>S</u> CHEMATIC	
	POWER DEVICES	1		FIRE ALARM	DEVICES	
\ominus	120V, 20 AMP SIMPLEX RECEPTACLE WITH LONG DIMENSION PERPENDICULAR TO FLOOR.	16 [*] TO BTM AFF, UON	B	MANUAL BREAKGLASS STATION		44" TO BTM AFF
e	120V, 20 AMP DUPLEX RECEPTACLE WITH LONG DIMENSION PERPENDICULAR TO FLOOR.	16* TO BTM	Ē	FIRE ALARM SIGNAL DEVICEVISUAL	ONLY	80" TO
e	120V, 20 AMP G.F.C.I. DUPLEX RECEPTACLE WITH LONG DIMENSION PERPENDICULAR TO FLOOR.	16* TO BTM	E ◀	FIRE ALARM SIGNAL DEVICECOMBIN	NATION AUDIBLE AND VISUAL	80" TO
d r	COMBINATION 120V, 20 AMP DUPLEX RECEPTACLE AND TELEVISION	72* TO BTM	8	SMOKE DETECTOR		CEILING
	DISCONNECT SWITCH AS SPECIFIED	ABOVE	୍ଦ୍	DUCT TYPE SMOKE DETECTOR		DUCT
\$	TYPICAL 120V, SIZE O FRACTIONAL H.P., TOGGLE TYPE, MANUAL STARTER WITH THERMAL OVERLOAD PROTECTION. JUN	ABOVE		CARBON MONOXIDE DETECTOR		ABOVE
⊗	TYPICAL EQUIPMENT MOUNTED JUNCTION BOX	ABOVE	FS	FLOW SWITCH FOR SPRINKLER PIPING	; SYSTEM	ABOVE
0	TYPICAL JUNCTION BOX	ABOVE	TS	TAMPER SWITCH FOR SPRINKLER SYS	TEM PIPING	ABOVE
	STEP-DOWN/UP TRANSFORMER SEE FEEDER DIAGRAM	FLOOR OR WALL		ABBREVIA	ATIONS	12001
GEN	GENERATOR REMOTE ANNUNCIATOR. ROUTE 1/2" CONDUIT BACK TO GENERATOR.	60* TO CTR AFF	AFF A	BOVE FINISHED FLOOR	TV TELEVISION	
	ELECTRICAL PANELBOARD - SEE FEEDER DIAGRAM. DASHED AREA REPRESENTS N.E.C. REQUIRED WORKSPACE CLEARANCE	WALL	GFI G	ROUND FAULT INTERRUPTING DEVICE FURNISH SELF—CONTAINED, NDIVIDUAL G.F.C.I. DEVICE —	C RED DEVICE, CONNECTED EMERGENCY POWER EAFC ESTIMATED AVAILABLE FAU	IU
	COMMUNICATIONS DEVICES	1		RE NOT ACCEPTABLE)	CURRENT BKR CIRCUIT BREAKER	
	COMPUTER/TELEPHONE OUTLET IN COMMON BACKBOX. ROUTE	16" TO BTM	FDS F	USED DISCONNECT SWITCH	EMT ELECTRICAL METALLIC TUI FLA FULL LOAD AMPS	BING
		ATT, OON	UON U	ION-FUSED DISCONNECT SWITCH JNLESS OTHERWISE NOTED	G GROUND (ALSO "GND") GRS GALVANIZED RIGID STEEL	CONDUIT
			IG I	SOLATED GROUND DEVICE	hp Horsepower Kva Kilovolt—Amps	
	LONG SLASH INDICATES PHASE WIRE			ATED DEVICE	KW KILOWATT MCA MINIMUM CIRCUIT AMPS	
		ABOVE		AULT CIRCUIT INTERRUPTOR	MOCP MAXIMUM OVERCURRENT NIC NOT IN CONTRACT	PROTECTION
		FLOOR	ST S	SHUNT TRIP DEVICE	PVC POLYVINYLCHLORIDE CONI CLASSIFIED AS RIGID NON	DUIT. IMETALLIC
	METALLIC CONDUIT, UNLESS OTHERWISE NOTED. MINIMUM 3/4*	BELOW FLOOR	MB M	MAIN CIRCUIT BREAKER MAIN LUGS ONLY	U.O.N. NL NIGHT LIGHT - LUMINAIRI	E SHALL BE
\frown	FLEXIBLE CONDUIT (LIQUID-TIGHT) MINIMUM 1/2*	ABOVE FLOOR			UNSWITCHED EXCEPT FOR BREAKER.	
	SWITCHED 120VAC LIGHTING WITH 0-10V DIMMING SIGNAL. USE SEPARATE CONDUITS OR A SHIELDED CABLE - CLASS 1 WIRING	ABOVE FLOOR				
	CAT 5e OR 6 CABLE USED FOR DIGITAL LIGHT CONTROLS EXPOSED ABOVE ACCESSIBLE CEILING OR IN CONDUIT ELSEWHERE	ABOVE FLOOR				
	•					
E	_ECTRICAL GENERAL NOTES					

- 4. G.F.I. TYPE RECEPTACLES SHALL BE SELF-CONTAINED UNITS WITH CLASS "A" SENSITIVITY.
- WHERE SINGLE POLE BRANCH CIRCUIT CONDUCTORS HAVE BEEN INCREASED ABOVE THE SIZE OF THE CIRCUIT BREAKER TO COMPENSATE FOR VOLTAGE DROP, THE INCREASED SIZE SHALL EXTEND THROUGHOUT THE ENTIRE CIRCUIT, EXCEPT WHERE IT IS NECESSARY TO REDUCE THE SIZE FOR CONNECTION TO SWITCH AND RECEPTACLE TERMINALS, ETC. EQUIPMENT GROUNDING CONDUCTORS SHALL ALSO BE ADJUSTED PROPORTIONATELY PER N.E.C. 250.122 (B).
- EXERCISE EXTREME CAUTION TO ENSURE THAT THERMAL INSULATION IS NOT INSTALLED CLOSE ENOUGH TO RECESSED LIGHTING FIXTURES TO PREVENT PROPER VENTILATION AND COOLING OF THE UNITS. FIXTURES SHALL COMPLY WITH ARTICLE 410 OF THE N.E.C. ALL RECESSED INCANDESCENT FIXTURES SHALL HAVE THERMAL CUT-OUT PROTECTION.
- UNLESS OTHERWISE NOTED OR DIRECTED, ALL CONDUIT SHALL BE CONCEALED BELOW FLOORS, IN WALLS, OR ABOVE CEILING. PRIOR AUTHORIZATION MUST BE ACQUIRED FROM THE ARCHITECT OR ENGINEER BEFORE USING ANY TYPE OF SURFACE MOUNTED RACEWAYS IN FINISHED AREAS.
- ELECTRICAL CONTRACTOR SHALL VERIFY SERVICE AND VOLTAGE REQUIREMENTS FOR ALL EQUIPMENT TO BE CONNECTED (BOTH NEW AND EXISTING) PRIOR TO MAKING CONNECTIONS.
- DUPLEX RECEPTACLES SHALL BE MOUNTED AT 16" ABOVE THE FINISHED FLOOR, EXCEPT WHERE OTHERWISE NOTED, AND EXCEPT WHERE RECEPTACLES ARE SHOWN ABOVE CABINETS, COUNTERS, ETC. WHERE RECEPTACLES ARE SHOWN AT COUNTERS OR CABINETS, THEY SHALL BE INSTALLED 6" TO BOTTOM ABOVE THE CABINET TOP. WHERE THERE IS A BACKSPLASH, THE RECEPTACLES SHALL BE JUST ABOVE THE BACKSPLASH. WHERE RECEPTACLES ARE SHOWN ADJACENT TO LAVATORIES, THE RECEPTACLES SHALL BE MOUNTED AT APPROXIMATELY 6" TO BOTTOM ABOVE THE LAVATORY TOP.
- 10. TELEPHONE OUTLETS DESIGNATED AS BEING MOUNTED AT 16" A.F.F. SHALL BE ARRANGED FOR DESK TYPE TELEPHONE(S). TELEPHONE OUTLETS DESIGNATED AS BEING MOUNTED AT 44" A.F.F. SHALL BE SUITABLE FOR A WALL MOUNTED TELEPHONE (WHERE SHOWN ADJACENT TO LIGHT SWITCH, MOUNT AT SAME HEIGHT AS LIGHT SWITCH). WHERE TELEPHONE OUTLETS ARE SHOWN AT OR ABOVE CABINETS/COUNTERS, THE OUTLET SHALL BE MOUNTED AT 6' ABOVE THE COUNTER TOP. WHERE THERE IS A BACKSPLASH, THE OUTLETS SHALL BE MOUNTED ABOVE THE BACKSPLASH.
- 11. SURFACE MOUNTED LIGHTING FIXTURES INSTALLED IN AREAS THAT DO NOT HAVE AN ACCESSIBLE CEILING SPACE ABOVE THEM SHALL BE INSTALLED IN COMPLIANCE WITH ARTICLE 410 OF THE N.E.C.
- 12. COORDINATE ALL CEILING MOUNTED EQUIPMENT, (i.e. LIGHTING FIXTURES, SPEAKERS, GRILLES, ETC.) WITH ALL OTHER EQUIPMENT & TRADES PRIOR TO & DURING INSTALLATION TO AVOID CONFLICTS. SHOULD IT BECOME NECESSARY TO REPOSITION SMOKE DETECTORS, EXERCISE CAUTION NOT TO EXCEED THE 36' AND 15' SPACINGS AS REQUIRED BY THE LIFE SAFETY CODE.
- 13. FIRE AND SMOKE STOP AROUND ALL CONDUIT, EQUIPMENT, ETC. WHICH PENETRATES FLOORS, WALLS, AND CEILINGS.
- 14. EACH CONTRACTOR SHALL BE RESPONSIBLE FOR VISITING THE SITE PRIOR TO BIDDING IN ORDER TO BECOME FAMILIAR WITH THE EXISTING CONDITIONS AND ANY DISCREPANCIES OR QUESTIONS SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT/ENGINEER PRIOR TO BIDDING.
- 15. COMPLY WITH ALL CODES AND REGULATIONS, ETC. REGARDING PENETRATION OF THE CEILING FOR THIS TYPE OF CONSTRUCTION.
- 16. WHERE LIGHTING SWITCHES, RECEPTACLES, & FIRE ALARM DEVICES ARE TO BE SURFACE MOUNTED IN FINISHED AREAS, USE OUTLET BOXES EQUAL TO "WIREMOLD". ALL SURFACE MOUNTED RACEWAY IN FINISHED AREAS SHALL BE WIREMOLD TYPE. NO EXPOSED CONDUIT WILL BE ALLOWED IN FINISHED AREAS.
- 17. ALL LIGHTING AND RECEPTACLE CIRCUITS SHALL HAVE A SEPARATE GROUND WIRE CONTINUOUS THROUGHOUT THE CIRCUIT. THE CONDUIT SHALL NOT BE CONSIDERED ADEQUATE. 18. JUNCTION BOXES SHALL NOT BE MOUNTED BACK TO BACK.
- 19. WHERE DEVICE BACKBOXES ARE LOCATED IN A RATED WALL, THESE BOXES SHALL BE RATED FOR SUCH USE.
- 28. JUNCTION OR BACKBOXES MOUNTED IN RATED WALLS SHALL NOT BE LOCATED IN A COMMON CAVITY BETWEEN STUDS. COORDINATE WITH ARCHITECTURAL DRAWINGS
- 21. ALL ELECTRICAL WORK SHALL BE ACCOMPLISHED BY ELECTRICIANS LICENSED BY THE JURISDICTION IN WHICH THE WORK WILL BE PERFORMED.
- 22. WHERE A RECEPTACLE OR LIGHTING FIXTURE, REMOVED DURING DEMOLITION, INTERRUPTS POWER TO DOWNSTREAM ELECTRICAL DEVICES THAT ARE EXISTING TO REMAIN, THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR ENSURING THAT DOWNSTREAM DEVICES ARE RECONNECTED AND REMAIN ACTIVE.
- 23. RECEPTACLES AND COMPUTER OUTLETS SHOWN AT CASEWORK LOCATIONS SHALL BE MOUNTED AT 16" TO BOTTOM A.F.F. WHERE A DEDICATED KNEE SPACE IS PROVIDED. CENTER DEVICES IN KNEE SPACE. WHERE NO KNEE SPACE IS PROVIDED, RECEPTACLES SHALL BE MOUNTED ABOVE COUNTER AT 6" TO BOTTOM, U.O.N. REFER TO ARCHITECTURAL CASEWORK ELEVATIONS.
- 24. SMOKE DETECTORS SHALL NOT BE LOCATED WITHIN THREE (3) FEET OF SUPPLY/RETURN AIR GRILLES OR CEILING FANS.
- 25. CONTRACTOR SHALL MAINTAIN ACCURATE "AS-BUILT" DRAWINGS DURING CONSTRUCTION. THESE DRAWINGS SHALL BE SUBMITTED TO THE GENERAL CONTRACTOR UPON COMPLETION OF THE PROJECT.
- 26. THESE DRAWINGS ARE DIAGRAMMATIC IN NATURE AND INDICATE THE GENERAL ARRANGEMENT OF SYSTEMS, EQUIPMENT AND COMPONENTS AND THEIR RELATED ELECTRICAL CONNECTIONS. DEVICE AND PATHWAY PLACEMENT/ROUTING IS ONLY REPRESENTATIVE OF A GENERAL LOCATION UNLESS OTHERWISE INDICATED BY DIMENSIONS. SYMBOLS ARE USED EXTENSIVELY WHICH MAY NOT EXACTLY REPRESENT ACTUAL SIZES. 27. THESE DRAWINGS DO NOT SHOW ALL OFFSETS, TRANSITIONS AND/OR DEVICES NECESSARY FOR A COMPLETE AND FUNCTIONAL SYSTEM AS REQUIRED BY THE CONTRACT DOCUMENTS. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO PLACE THESE DEVICES
- AND PATHWAYS SUCH THAT THEY OFFER FULL FUNCTIONALITY WITHOUT HINDRANCE FROM CASEWORK, FURNITURE, WINDOWS AND DOORS, HVAC, PLUMBING, ELECTRICAL, AND OTHER BUILDING SYSTEMS.
- 28. NO PIPING, DUCTS OR EQUIPMENT FOREIGN TO ELECTRICAL EQUIPMENT SHALL BE PERMITTED TO BE LOCATED WITHIN THE DEDICATED SPACE ABOVE ELECTRICAL EQUIPMENT.
- 29. ELECTRICAL CONTRACTOR SHALL FURNISH AND INSTALL TEMPORARY POWER TO FIELD OFFICE AND JOBSITE AND REMOVE UPON COMPLETION OF CONSTRUCTION. COORDINATE WITH LOCAL UTILITY.
- 30. ELECTRICAL CONTRACTOR SHALL FURNISH AND INSTALL TEMPORARY LIGHTING INSIDE FACILITY DURING CONSTRUCTION AND SHALL REMOVE TEMPORARY LIGHTING ONCE PERMANENT POWER AND LIGHTING ARE OPERATIONAL.
- 31. SHARED NEUTRAL CONDUCTORS ON MULTI-WIRE BRANCH CIRCUITS SHALL NOT BE ALLOWED, FURNISH AND INSTALL DEDICATED NEUTRALS PER CIRCUIT.

	ELECTRICAL SPECIFICATIONS	
	XCAVATING TRENCHING AND BACKELL	
L. A.	GENERAL: LAY ALL RACEWAYS IN OPEN TRENCH. OPEN THE TRENCH SUFFICIENTLY AHEAD OF	
	RACEWAY LAYING TO REVEAL OBSTRUCTIONS. MAINTAIN EASY ACCESS TO FIRE HYDRANTS BY FIRE FIGHTING APPARATUS. PROVIDE TRENCH CROSSINGS AS NECESSARY TO ACCOMMODATE PUBLIC TRAVEL. ALL EXCAVATIONS SHALL BE FULLY PROTECTED.	
B.	SEPARATE TRENCHES: UNLESS OTHERWISE SHOWN OR REQUIRED, PROVIDE SEPARATE TRENCHES FOR COMMUNICATION LINES AND POWER LINES, RESPECTIVELY, WITH A MINIMUM OF THREE (3) FEET	
	OF UNDISTURBED EARTH BETWEEN TRENCHES. GAS AND ELECTRICAL LINES SHALL ALWAYS BE PLACED IN SEPARATE TRENCHES.	
C.	WIDTH OF TRENCH: EXCAVATE TRENCHES OF SUFFICIENT WIDTH FOR PROPER INSTALLATION OF WORK.	
D.	WATER REMOVAL: KEEP TRENCHES FREE FROM WATER WHILE CONSTRUCTION THEREIN IS IN PROGRESS. UNDER NO CIRCUMSTANCES LAY CONDUCT OR APPURTENANCES IN WATER. PUMP OR DATE OF DEPARTMENT OF THE DATE OF DATE OF DATE OF DATE OF DATE.	
-	BAIL HOLES TO PERMIT PROPER JOINTING OF THE RACEWATS. CONDUCT THE DISCHARGE PROM TRENCH DEWATERING TO DRAINS OR NATURAL DRAINAGE CHANNELS.	
Ľ.	DISPUSITION OF UTILITIES: 1. RULES AND REGULATIONS GOVERNING THE RESPECTIVE UTILITIES SHALL BE OBSERVED IN EXECUTING ALL WORK UNDER THIS HEADING.	
	2. ACTIVE UTILITIES SHOWN ON THE DRAWINGS SHALL BE ADEQUATELY PROTECTED FROM DAMAGE AND REMOVED OR RELOCATED ONLY IN ACCORDANCE WITH WRITTEN INSTRUCTIONS	
	FROM THE ARCHITECT, UTILITIES SHOWN ARE LOCATED AS NEAR AS POSSIBLE TO ASCERTAIN IN CORRECT LOCATIONS BUT SOME VARIANCE IN LOCATION MAY BE EXPECTED.	
	3. ACTIVE UTILITIES NUT SHOWN ON THE DRAWINGS NOR EVIDENT DURING INSPECTION, SHALL BE PROTECTED OR RELOCATED IN ACCORDANCE WITH WRITTEN INSTRUCTION OF THE ENGINEER.	
	4. INACTIVE AND ABANDONED UTILITIES ENCOURTENED IN TRENCHURG UTERATIONS SHALL BE REMOVED, PLUGGED, OR CAPPED. IN ABSENCE OF SPECIFIED REQUIREMENTS, PLUG OR CAP SUCH UTILITY LINES AT LEAST THEFE FEET FROM UTILITY LINES TO BE INSTALLED, OR AS	
F.	EXCAVATION: MATERIALS TO BE EXCAVATED SHALL INCLUDE EARTH OR ANY OTHER MATERIAL	
	DEPTH AND EXTENT INDICATED ON THE DRAWINGS AND HEREIN SPECIFIED.	
G.	INCLE PROJECTION: EXERCISE CARE TO PROTECT THE ROOTS OF TREES TO REMAIN. WITHIN THE BRANCH SPREAD OF SUCH TREES, PERFORM ALL TRENCHING BY HAND. OPEN THE TRENCH ONLY WHEN THE UTILITY CAN BE INSTALLED IMMEDIATELY; PROME INJURED ROOTS CLEANLY AND DEVICE THE ADDRESS OF TREES AND ADDRESS OF TREES TO REPORT OF THE	
	BACKFILL AS SOUN AS POSSIBLE. PENFORM ALL THIS WORK UNDER THE DIRECTION OF THE ARCHITECT.	
н	BACKFILLING: BACKFILL TRENCHES ONLY AFTER CONDUIT HAS BEEN INSPECTED, CHECKED AND LOCATIONS OF UTILITIES AND APPURTENANCES HAVE BEEN RECORDED. BACKFILL ONLY WITH SUITABLE MATERIAL FREE FROM DEBRIS WHICH COULD DAMAGE THE CONDUIT(S). IN AREAS	
	SUBJECT TO VEHICULAR TRAFFIC, BACKFILL WITH COMPACTED CRUSHED LIMESTONE OR FLOWABLE FILL CONCRETE. REPLACE SURFACE TO ORIGINAL CONDITION.	
	CONDUIT	
A.	RIGID GALVANIZED STEEL CONDUIT SHALL BE USED FOR ALL ABOVE GROUND EXTERIOR APPLICATIONS OR WHERE CONDUIT MAY BE SUBJECTED TO PHYSICAL DAMAGE. ANY EXCEPTION TO	
В.	THE ABOVE WILL BE SPECIFICALLY NOTED. PVC CONDUIT SHALL BE USED FOR ALL UNDERGROUND OR UNDERSLAB APPLICATIONS. SCH 80 SHALL	
	BE USED FOR FEEDERS AND SERVICES AND 2" RED CONCRETE ENCASEMENT SHALL BE REQUIRED WHERE THESE CONDUIT PASS UNDER AREAS OF VEHICLE TRAFFIC. SCH 40 SHALL BE USED FOR BRANCH CIRCUITS - NO CONCRETE.	
C.	EMT CONDUIT OR MC CABLE SHALL BE EMPLOYED FOR ALL INTERIOR APPLICATIONS OTHER THAN THOSE LISTED ABOVE FOR RIGID CONDUIT.	
D.	ALUMINUM CONDULT SHALL NOT BE PERMITTED FOR ANY APPLICATIONS.	
E.	WHERE CONDUITS CROSS BUILDING EXPANSION JOINTS, USE SUITABLE SLIDING OR OFFSETTING FITTINGS. UNLESS SPECIFICALLY APPROVED FOR BONDING, USE A SUITABLE BONDING JUMPER.	
F.	THE MINIMUM SIZE OF CONDUIT SHALL BE 1/2" UNLESS OTHERWISE NOTED ON THE DRAWINGS.	
	WIRE	
A. B.	ALL WIRING SHALL BE COPPER, CODE GRADE, TYPE THW OR THHN/THWN EQUIVALENT, RATED 600V. ALL WIRING SHALL BE INSTALLED IN CONDUIT OR OTHER N.E.C. APPROVED RACEWAY.	
C.	ALL SPLICES SHALL BE PRESSURE TYPE AND SHALL BE MADE IN ACCESSIBLE JUNCTION OR SPLICE BOXES, WIRING, FLUORESCENT FIXTURES, ETC., SHALL BE OF THE PROPER TEMPERATURE RATING	
D.	PER THE N.E.C. ALL CONDUCTORS #8 AWG AND LARGER SHALL BE STRANDED.	
	WIRING DEVICES	
A.	WIRING DEVICES SHALL BE SPECIFICATION GRADE BY PASS & SEYMOUR, BYRANT, LEVITON OR	
В.	HUBBELL. RECEPTACLES SHALL BE 20 AMPERE, 125 VOLT DUPLEX WITH GROUNDING SLOT, UNLESS OTHERWISE	
C.	NUTED. SWITCHES SHALL BE 20 AMPERE, 120/277 VOLT.	
D.	ALL WIRING DEVICES SHALL BE PROVIDED WITH COMMERCIAL SPECIFICATION GRADE FINISHING PLATES.	
Ε.	CONTRACTOR SHALL FURNISH AND INSTALL ALL RECEPTACLES & LIGHTING CONTROLS WITH A SELF-ADHESIVE LABEL STATING PANELBOARD NAME AND CIRCUIT NUMBER FEEDING DEVICE. APPLY	
	DISCONNECT SWITCHES	
A.	ALL DISCONNECT SWITCHES SHALL BE HEAVY DUTY TYPE WITH QUICK-MAKE, QUICK-BREAK MECHANISM. GENERAL DUTY SWITCHES SHALL NOT BE ACCEPTABLE.	
В.	DISCONNECT SWITCHES SHALL BE NEMA 1 UNLESS OTHERWISE NOTED OR DICTATED BY APPLICATIONS. EXTERIOR DISCONNECT SWITCHES SHALL BE A MINIMUM OF NEMA 3R.	
C.	DISCONNECT SWITCHES SHALL BE SQUARE "D", CUTLER-HAMMER, GENERAL ELECTRIC, OR SIEMENS.	
	PANELBOARDS	
A.	ALL BRANCH PANELS SHALL BE PANELBOARD TYPE CONSTRUCTION WITH DISTRIBUTED PHASE BUSSING AND BOLT-IN TYPE BREAKERS. ALL MULTI-POLE BREAKERS SHALL HAVE COMMON TRIP AND	
В.	PANELBOARDS SHALL HAVE LOCKING TYPE DOORS AND ALL LOCKS SHALL BE KEYED ALIKE. PANELS	
	STALL HAVE AN INDEA OF GIRCULTRY WHICH SHALL BE <u>ITHED</u> IN BY THE CONTRACTOR TO INDICATE WHAT EACH CIRCUIT FEEDS. MINOR REARRANGEMENT OF CIRCUITRY TO OBTAIN A BALANCED LOAD SHALL BE PERMITTED.	
C.	PANELBOARDS SHALL BE SQUARE "D", CUTLER-HAMMER, GENERAL ELECTRIC, OR SIEMENS.	
	FITTINGS	
A .	THINWALL CONDUIT (EMT) FITTINGS SHALL BE ALL STEEL, RAINTIGHT, AND SET-SCREW TYPE UP TO AND INCLUDING 2" CONDUIT. SET- SCREW TYPE SHALL BE USED ON SIZES LARGER THAN 2".	
B.	RIGID CONDUIT FITTINGS SHALL BE METALLIC HEAVY DUTY TYPE.	
с. D.	DIE-CAST AND INDENTER TYPE FITTINGS SHALL NOT BE ACCEPTABLE.	
E.	FURNISH TYPE AS MANUFACTURED BY T & B, STEEL CITY, APPLETON, RACO OR APPROVED EQUAL.	
	LIGHTING	
A.	ALL LUMINAIRES AND LIGHTING EQUIPMENT SHALL BE DELIVERED TO PROJECT SITE COMPLETE WITH ALL SUSPENSION ACCESSORIES, CANOPIES, HOUSINGS, DIFFUSERS, SOCKETS, BALLASTS/DRIVERS, REFLECTORS, LOLMERS, ETC. AS NEEDED OR SPECIFIED HEREIN FOR A COMPLETE INSTALLATION	
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	FIRE ALARM
A.	THE SYSTEM SHALL BE A MICRO-PROCESSOR BASED, ANALOG ADDRESSABLE SYSTEM, WHICH SHALL BE REQUIRED TO MONITOR THE FIRE SUPPRESSION SYSTEM ONLY.
B.	EQUIPMENT SHALL BE HONEYWELL FCI, AUTOCALL, SIMPLEX OR EQUAL.
C.	THE SYSTEM SHALL INCLUDE BATTERIES AND CHARGER FOR STANDBY POWER DURING FAILURE OF NORMAL POWER.
D.	ALL SMOKE DETECTORS SHALL BE CONNECTED TO , POWERED BY, AND CONTROLLED BY THE FIRE ALARM SYSTEM.
E.	DIGITAL COMMUNICATOR SHALL BE LUCATED IN FIRE ALARM PAREL. FURNISH AND INSTALL A DEDICATED VOICE LINE TO TELEPHONE SYSTEM AS PART OF CONTRACT. THE DIGITAL COMMUNICATOR SHALL NOTIFY THE REMOTE MONITORING STATION OF AN ALARM. THE COMMUNICATOR SHALL BE CONNECTED TO A UL APPROVED FACILITY. <u>INITIAL CHARGES FOR THE</u> <u>CONNECTION SHALL BE INCLUDED IN CONTRACT. FUTURE MONTHLY CHARGES WILL BE PAID BY</u> THE OWNER. OPERATION OF THE TEST SWITCH SHALL DISCONNECT THE SUPERVISED AUXILIARY CIRCUIT AND OPERATE THE TROUBLE SIGNAL DURING THE TEST PERIOD.
F.	FURNISH AND INSTALL A DUAL PATH COMMUNICATOR MODULE ALONG WITH ALL REQUIRED CABLING AND PROGRAMMING ADJACENT TO MAIN FIRE ALARM PANEL.
G.	ALL SYSTEM WIRING SHALL BE SIZED AS REQUIRED TO OPERATE THE SYSTEM. <u>All wiring shall</u> <u>BE IN CONDUIT.</u> All wiring shall be in strict accordance with the NEC and all APPLICABLE CODES. COLOR CODE SHALL BE USED. ALL WIRES SHALL BE TAGGED AT ALL JUNCTION POINTS AND SHALL TEST FREE FROM GROUNDS OR CROSSES BETWEEN CONDUCTORS.
H.	SHOP DRAWINGS SHALL BE SUBMITTED PER SHOP DRAWING REQUIREMENTS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR SUBMISSION TO PLAN REVIEW AUTHORITY AND PAYING ASSOCIATED FEES.
1.	THE CONTRACTOR SHALL GUARANTEE ALL EQUIPMENT AND WIRING FREE FROM INHERENT MECHANICAL AND ELECTRICAL DEFECTS FOR A PERIOD OF ONE (1) YEAR FROM THE DATE OF INSTALLATION.
л. К.	THE FACILITY SHALL BE SUBJECT TO EMERGENCY RESPONDER RADIO SIGNAL COVERAGE IN ACCORDANCE WITH TBC 916 AND IFC 519. ONCE THE BUILDING SHELL, EXTERIOR WALLS, INTERIOR
	STRUCTURAL FLOORS, CEILINGS, WALLS ARE IN PLACE, THE CONTRACTOR SHALL ENGAGE QUALIFIED PERSONNEL TO PERFORM A SIGNAL STRENGTH SURVEY OF ALL LEVELS OF THE FACILITY. IF AREAS DO NOT MEET THE 95% / -950Bm REQUIREMENT OF IFC 510.4.1, THE
	CONTRACTOR SHALL FURNISH A BI-DIRECTIONAL AMPLIFIER SYSTEM. REPEATER ANTENNAS SHALL BE INSTALLED THROUGHOUT AREAS OF FACILITY WITH INSUFFICIENT SIGNAL LEVELS. CONTRACTOR SHALL PREPARE A COST PROPOSAL AND SUBMIT FOR APPROVAL. PROPOSAL SHALL
	COVER THE COSTS OF INITIAL SURVEY, PURCHASE & INSTALLATION OF ALL EQUIPMENT, CONDUITS & CABLING, LABOR, FINAL TESTING, AND CERTIFICATIONS. CONTRACT AMOUNT WILL BE ADJUSTED VIA CHANGE ORDER BASED ON AMOUNT OF ACCEPTED PROPOSAL.
	SUBMITTALS
A.	AT MINIMUM, SUBMITTALS SHALL BE SUBMITTED FOR LUMINAIRES, LIGHTING CONTROLS, SWITCHGEAR/PANELBOARDS, FIRE ALARM SYSTEM/COMPONENTS, AND TRANSFORMERS WHERE APPLICABLE TO THE PROJECT. OTHERS ARE NOT REQUIRED BUT WILL BE ACCEPTED AND REVIEWED SUCH AS WIRING DEVICES. CONDUIT, WIRE, BOXES.
3.	SUBMIT MANUFACTURER'S SPECIFICATION SHEETS, CATALOG SHEETS, OR SHOP DRAWINGS COVERING ALL PHASES OF WORK INCLUDED IN THE PROJECT.
) .	HARD COPY SUBMITTALS SHALL BE ARRANGED IN SETS AND BOUND. IF MULTIPLE SUBMITTALS ARE SENT TOGETHER, EACH SECTION SHALL ORGANIZED IN SEPARATE INDEXED SECTIONS. <u>NO LOOSE</u>
).	LEAF SHEETS WILL BE ACCEPTED. Electronic submittals shall be in PDF format with each section in a separate file. <u>All</u>
	ALL SUBMITTALS SHALL BEAR WRITTEN CERTIFICATION TO THE EFFECT THAT THE CONTRACTOR HAS
	TO BE DIMENSIONALLY CORRECT WITH REFERENCE TO AVAILABLE SPACE AND OTHER TRADES. EACH SUBMITTAL SHALL BE SIGNED AND DATED BY CONTRACTOR.
	SUBMITTALS ARE REQUIRED EVEN WHEN EQUIPMENT BEING FURNISHED IS EXACTLY AS SPECIFIED.
۹.	THE CONTRACTOR SHALL PERFORM MEGGER TESTING OF EACH CONDUCTOR MAKING UP SERVICE
	ENTRANCE, IF INSTALLED BY CONTRACTOR, AND ALL FEEDERS. ANY CONDUCTORS INSTALLED OR OWNED BY THE SERVING UTILITY ARE EXEMPT FROM SAID TESTING.
\$.	THE TEST SHALL BE PERFORMED WITH AN APPLIED POTENTIAL OF 1999 VOLTS DC FOR 1 MIN. Contractor shall perform tests with conductors disconnected at both ends. The Minimum insulation resistance values shall not be less than two megaohms.
) .	THE CONTRACTOR SHALL RECORD ALL READINGS AND SUBMIT A TEST REPORT WITH CLOSE OUT DOCUMENTS.
).	ALL TERMINATIONS SHALL BE MADE WITH A PROPERLY CALIBRATED TORQUE WRENCH TO BE WITHIN EQUIPMENT MANUFACTURER'S RECOMMENDED VALUES. FOR LUG TERMINATIONS ON SERVICES & FEEDERS, CONTRACTOR SHALL MARK A LINE ACROSS THE TOP OF THE LUG AFTER PROPER TIGHTENING.
	CONTRACTOR SHALL SUBMIT COPIES OF MOST RECENT CALIBRATION CERTIFICATES FOR ALL TORQUE WRENCHES TO BE USED ON SITE. CALIBRATION MUST HAVE BEEN DONE WITHIN 12 MONTHS OF THE TIME OF USE ON PROJECT SITE
	PERMITS AND INSPECTIONS
٩	CONTRACTOR SHALL PAY ALL FEES & OBTAIN ALL PERMITS REQUIRED.
3.	CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING WITH ALL AUTHORITIES GOVERNING THE PROJECT AND PROVIDING PROPER NOTICE TO SAID AUTHORITIES FOR ALL REQUIRED INSPECTIONS. AN LACK OF COORDINATION REQUIRING THE REMOVAL OF INSTALLED BUILDING COMPONENTS TO SATISFY REQUIRED INSPECTIONS WILL BE AT CONTRACTOR'S EXPENSE TO REPAIR.
C.	CONTRACTOR SHALL NOTIFY THE ENGINEER OF RECORD AT THE FOLLOWING PROGRESS POINTS IN THE PROJECT FOR ENGINEERING INSPECTIONS:
C.2	. UNDERGROUND SERVICE ENTRANCE AND FEEDERS PRIOR TO CONCRETE ENCASING OR BACKFILLIN DOES NOT INCLUDE ANY UTILITY SIDE CONDUITS. INTERIOR ROUGH-IN PRIOR TO ANY WALL COVERINGS BEING IN PLACE. DANEL BOADD/SWITCH/CEAD/TRANSFORMER TERMINATIONS BEFORE SECURING COVERS
0.3 C.4	ABOVE CEILING AFTER LUMINAIRE INSTALLATION PRIOR TO CEILING TILES BEING INSTALLED.
	CANNOT PERFORM INSPECTION IN A TIMELY MANNER AS TO NO DELAY CONSTRUCTION, THE CONTRACTOR SHALL SUBMIT DIGITAL PHOTOGRAPHIC EVIDENCE OF THE INSTALLATION. ENGINEER SHALL REVIEW PHOTOGRAPHS AND GIVE NOTICE OF ACCEPTANCE AT WHICH TIME THE CONTRACTOR MAY PROCEED.
	FAILURE TO NOTIFY ENGINEER OF INSPECTIONS SHALL RESULT IN CONTRACTOR REMOVING ALL COVER TO ALLOW INSPECTION AND REPLACING TO PREVIOUS CONDITION AT CONTRACTOR'S OWN EXPENSE.
	SUBSTITUTIONS
۹.	THE PROPOSED SUBSTITUTION SHALL BE FULLY INVESTIGATED AND DETERMINED TO BE EQUAL OR SUPERIOR IN ALL RESPECTS TO THE SPECIFIED PRODUCT.
3.	THE SAME WARRANTY SHALL BE FURNISHED FOR THE PROPOSED SUBSTITUTION AS FOR THE SPECIFIED PRODUCT.
D .	THE PROPOSED PRODUCT SHALL HAVE THE SAME MAINTENANCE SERVICE AND AVAILABILITY OF SPARE PARTS.
).	THE PROPOSED SUBSTITUTION SHALL NOT AFFECT DIMENSIONS AND/OR FUNCTIONAL REQUIRED CLEARANCES PER THE MANUFACTURER OR THE LATEST APPLICABLE CODES.
	THE PROPOSED SUBSTITUTION SHALL HAVE NO ADVERSE EFFECT ON OTHER TRADES AND SHALL NOT AFFECT AND/OR DELAY THE PROGRESS SCHEDULE.
	THE CONTRACTOR SHALL BE RESPONSIBLE TO PAY FOR ANY CHANGES TO BUILDING DESIGN, INCLUDING ARCHITECTURAL/ENGINEERING DESIGN, DETAILING AND CONSTRUCTION COST CAUSED BY THE SUBSTITUTION.
3.	THE CONTRACTOR SHALL TAKE SOLE RESPONSIBILITY FOR SUBSTITUTIONS THAT ARE DEEMED "VALUE ENGINEERING" AND DETERMINED NOT EQUAL OR SUPERIOR TO THE PRODUCT SPECIFIED.

STITUTIONS ILLY INVESTIGATED AND DETERMINED TO BE EQUAL OR FIED PRODUCT.) FOR THE PROPOSED SUBSTITUTION AS FOR THE SPECIFIED SAME MAINTENANCE SERVICE AND AVAILABILITY OF SPARE AFFECT DIMENSIONS AND/OR FUNCTIONAL REQUIRED THE LATEST APPLICABLE CODES. 'E NO ADVERSE EFFECT ON OTHER TRADES AND SHALL NOT HEDULE. TO PAY FOR ANY CHANGES TO BUILDING DESIGN, INCLUDING FAILING AND CONSTRUCTION COST CAUSED BY THE INSIBILITY FOR SUBSTITUTIONS THAT ARE DEEMED "VALUE OR SUPERIOR TO THE PRODUCT SPECIFIED. EQUIPMENT LABELING REQUIREMENTS

ALL ELECTRICAL EQUIPMENT, INCLUDING BUT NOT LIMITED TO SWITCHBOARDS, PANELBOARDS, ENCLOSED C.B.'S, FUSED AND NON-FUSED DISC. SW., MOTOR CONTROLS, ETC., SHALL BE LABELED IN ACCORDANCE WITH THE FOLLOWING:

- LETTERING.

- NEUTRAL WIRE COLORS.

LABEL SHALL BE AN ENGRAVED BAKELITE TAG - BLACK BACKGROUND WITH WHITE

2. LABEL SHALL BE ATTACHED TO EQUIPMENT WITH SILICONE ADHESIVE. 3. ALL LABELS SHALL HAVE AN EQUIPMENT NAME AT THE TOP IN SLIGHTLY LARGER LETTERING THAN OTHER TEXT ON THE LABEL. FOR PANELBOARDS OR SWITCHBOARDS, THE NAME SHALL BE THE NAME OF SAID EQUIPMENT. FOR DISCONNECTS, STARTERS, ETC., THE NAME SHALL BE THE EQUIPMENT BEING FED. 4. ALL LABELS SHALL INCLUDE THE UPSTREAM EQUIPMENT NAME AND CIRCUIT A THAT IS PROVIDING POWER TO SAID EQUIPMENT. IN THE CASE OF SERVICE EQUIPMENT, JUST REPLACE THIS LINE WITH THE WORDS "SERVICE EQUIPMENT" 5. ALL LABELS SHALL INCLUDE THE FOLLOWING INFORMATION: VOLTAGE(S), PHASES, 3 OR 4 WRE, MAIN OC DEVICE OR MAIN LUG, AMP RATING, AND PHASE AND

IDENCE OF THE INSTALLATION. ENGINEER SHALL REVIEW PTANCE AT WHICH TIME THE CONTRACTOR MAY PROCEED. IONS SHALL RESULT IN CONTRACTOR REMOVING ALL COVERINGS PREVIOUS CONDITION AT CONTRACTOR'S OWN EXPENSE.

ND FEEDERS PRIOR TO CONCRETE ENCASING OR BACKFILLING. ALL COVERINGS BEING IN PLACE. RMER TERMINATIONS BEFORE SECURING COVERS ISTALLATION PRIOR TO CEILING TILES BEING INSTALLED. EAST ONE WEEK PRIOR TO REQUIRED INSPECTION. IF ENGINEER Y MANNER AS TO NO DELAY CONSTRUCTION, THE CONTRACTOR

ELECTRICAL SPECIFICATIONS E ALARM

System No. W-L-1001

June 15, 2005

F Ratings ---- 1, 2, 3 and 4 Hr (See Items 2 and 3)

T Ratings ---- 0, 1, 2, 3, and 4 Hr (See Item 3)

L Rating At Ambient --- less than 1 CFM/sq ft

1. Wall Assembly ---- The 1, 2, 3 or 4 hr fire-rated gypsum wallboard/stud wall assembly shall be constructed of the materials and in the manner described in the individual U300 or U400 Series Wall or Partition Designs in the UL

Fire Resistance Directory and shall include the following construction features: A. Studs — Wall framing may consist of either wood studs (max 2 h fire rated assemblies) or steel channel studs. Wood studs to consist of nom 2 by 4 in. (51 by 102 mm) lumber spaced 16 in. (406 mm) OC with nom 2 by 4 in. (51 by 102 mm) lumber end plates and cross braces. Steel studs to be min 3-5/8 in. (92 mm) wide by 1-3/8 in (35 mm) deep channels spaced max 24 in. (610 mm) OC.

B. Gypsum Board* — Nom 1/2 or 5/8 m. (13 or 16 mm) thick, 4 ft. (122 cm) wide with square or tapered edges. The gypsum wallboard type, thickness, number of layers, fastener type and sheet orientation shall be as specified in the individual U300 or U400 Series Design in the UL Fire Resistance Directory. Max diam of opening is 26 in. (660 mm).

2. Through-Penetrant — One metallic pipe, conduit or tubing installed either concentrically or eccentrically within the firestop system. The annular space between pipe, conduit or tubing and periphery of opening shall be min of 0 in / (0 mm). (point contact) to max 2 in. (51 mm) Pipe, conduit or tubing to be rigidly supported on both sides of wall assembly. The following types and sizes of metallic pipes, conduits or tubing may be used:

A. Steel Pipe -- Nom 24 in. (610 mm) diam (or smaller) Schedule 10 (or heavier) steel pipe.

B. Iron Pipe --- Nom 24 in. (610 mm) diam (or smaller) service weight (or heavier) cast iron soil pipe, nom 12 in (305 mm) diam (or smaller) or Class 50 (or heavier) ductile iron pressure pipe. C. Conduit — Nom 6 in. (152 mm) diam (or smaller) steel conduit or nom 4 in (102 mm) diam (or smaller) steel electrical metallic tubing

D. Copper Tubing - Nom 6 in. (152 mm) diam (or smaller) Type L (or heavier) copper tubing

E. Copper Pipe — Nom 6 in. (152 mm) diam (or smaller) Regular (or heavier) copper pipe. F. Through Penetrating Product* — Flexible Metal Piping The following types of steel flexible metal gas

piping may be used: 1. Nom 2 in. (51 mm) diam (or smaller) steel flexible metal gas piping. Plastic covering on piping may or may not be removed on both sides of floor or wall assembly.

OMEGA FLEX INC

2. Nom 1 in. (25 mm) diam (or smaller) steel flexible metal gas piping. Plastic covering on piping may or may not be removed on both sides of floor or wall assembly

GASTITE, DIV OF TITEFLEX

3. Nom 1 in. (25 mm) diam (or smaller) steel flexible metal gas piping. Plastic covering on piping may or may not be removed on both sides of floor or wall assembly.

WARD MFG INC

3. Fill, Void or Cavity Material* — Caulk or Sealant — Min 5/8., 1-1/4,1-7/8 and 2-1/2 in. (16, 32, 48 and 64 mm) thickness of caulk for 1, 2, 3 and 4 hr rated assemblies, respectively, applied within annulus, flush with both surfaces of wall. Min 1/4 in. (6 mm) diam bead of caulk applied to gypsum board/penetrant interface at point contact location on both sides of wall. The hourly F Rating of the firestop system is dependent upon the hourly fire rating of the wall assembly in which it is installed, as shown in the following table. The hourly T Rating of the firestop system is dependent upon the type or size of the pipe or conduit and the hourly fire rating of the wall assembly in which it is installed, as tabulated below:

Max Pipe or Conduit Diam In (mm)	F Rating Hr	T Rating Hr
1 (25)	1 or 2	0+, 1 or 2
1 (25)	3 or 4	3 or 4
4 (102)	1 or 2	0
6 (152)	3 or 4	0
12 (305)	1 or 2	0

+When copper pipe is used, T Rating is 0 h.

3M COMPANY — CP 25WB+ or FB-3000 WT.

*Bearing the UL Classification Mark

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System No. W-L-3001

September 07, 2004

(Formerly System No. 149)

F Ratings --- 1 and 2 Hr (See Item 1)

T Ratings - 3/4, 1, 1-1/2 and 2 Hr (See Item 2)

L Rating At Ambient - 15 CFM/sq ft (See Item 3)

L Rating At 400 F ---- less than 1 CFM/sq ft (See Item 3)

SECTION A-A

1. Wall Assembly ---- The 1 or 2 hr fire-rated gypsum wallboard/stud wall assembly shall be constructed of the materials and in the manner described in the individual U300 or U400 Series Wall or Partition Designs in the UL Fire Resistance Directory and shall include the following construction features:

A. Studs --- Wall framing may consist of either wood studs or steel channel studs. Wood studs to consist of nom 2 by 4 in. lumber spaced 16 in. OC with nom 2 by 4 in. lumber end plates and cross braces. Steel studs to be min 3-5/8 in, wide by 1-3/8 in, deep channels spaced max 24 in OC.

B. Gypsum Board* — Nom 1/2 or 5/8 in thick, 4 ft wide with square or tapered edges. The gypsum wallboard type, thickness, number of layers and sheet orientation shall be as specified in the individual Wall or Partition Design. Diam of circular through opening to be 3/8 in. to 5/8 in. larger than outside diam of cable or cable bundle.

C. Fasteners — When wood stud framing is employed gypsum wallboard layers attached to studs with cement coated nails as specified in the individual Wall or Partition Design. When steel channel stud framing is employed, gypsum wallboard attached to studs with Type S self-drilling, self-tapping bugle-head steel screws as specified in the individual Wall or Partition Design.

The hourly F Rating of the firestop system is equal to the hourly fire rating of the wall assembly in which it is installed. 2. Cables — Individual cable or max 1 in. diam cable bundle installed in through opening with an annular space of

min 0 in. (point contact) to max 3/4 in. Cable to be rigidly supported on both sides of wall assembly. The following types and sizes of cables may be used:

A. Max 150 pair No. 24 AWG copper conductor telephone cable with polyvinyl chloride (PVC) insulation and jacket materials. When max 25 pair telephone cable is used, T Rating is 2 hr. When 50 to 150 pair telephone cable is used in 1 hr fire rated wall, T Rating is 3/4 hr. When 50 to 150 pair telephone cable is used in 2 hr fire rated wall, T Rating is 1 hr.

B. Max No. 10 AWG multiple copper conductor Type NM ("Romex") nonmetallic sheathed cable with PVC insulation and jacket materials. When Type NM cable is used, max T Rating is 1-1/2 hr. C. Multiple fiber optical communication cable jacketed with PVC and having a max outside diam of 5/8 in

When fiber optic cable is used, max T Rating is 2 hr. D. Max 12 AWG multiconductor (max seven conductors) power/control cable with cross-linked polyethylene (XLPE) insulation and XLPE or PVC jacket materials. When multiconductor power/control

cable is used, max T Rating is 2 hr. E. Max four conductor with ground No. 2 AWG (or smaller) aluminum SER cables with polyvinyl chloride insulation and jacket materials.

3. Fill, Void or Cavity Materials* — Caulk, Sealant or Putty — Caulk or putty fill material installed to completely fill annular space between cable and gypsum wallboard on both sides of wall and with a min 1/4 in. diam

bead of caulk or putty applied to perimeter of cable(s) at its egress from each side of the wall.

3M COMPANY — MP+ putty, CP 25WB+ caulk or FB-3000 WT sealant. (Note: L Ratings apply only when Type CP 25WB+ caulk or FB-3000 WT sealant is used.)

*Bearing the UL Classification Mark

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through opening is 32-1/2 in. (826 mm).

See Concrete Blocks (CAZT) category in the Fire Resistance Directory for names of manufacturers.

1A. Steel Sleeve — (Optional, not shown) — Nom 12 in. (305 mm) diam (or smaller) Schedule 40 (or heavier) steel pipe sleeve cast into concrete floor or wall. Sleeve to be flush with or project max 2 in. (51 mm) from top surface of floor or from both surfaces of wall. As an alternate, nom 12 in. (305 mm) diam (or smaller) sleeve fabricated from nom 0.019 in. (0.48 mm) thick galv steel cast or grouted into floor or wall assembly flush with floor or wall surfaces.

2. Through — Penetrant — One metallic pipe, conduit or tubing installed either concentrically or eccentrically within the firestop system. The annular space between pipe, conduit or tubing and periphery of opening shall be minof 0 in. (0 mm, point contact) to max 1-3/8 in. (35 mm). Pipe, conduit or tubing to be rigidly supported on both sides of wall assembly. The following types and sizes of metallic pipes, conduits or tubing may be used: A. Steel Pipe --- Nom 30 in. (762 mm) diam (or smaller) Schedule 10 (or heavier) steel pipe.

A1. Iron Pipe --- Nom 30 in. (762 mm) diam (or smaller) cast or ductile iron pipe.

B. Conduit --- Nom 6 in. (152 mm) diam (or smaller) rigid steel conduit.

3. Packing Material — Polyethylene backer rod or nom 1 in. (25 mm) thickness of tightly-packed ceramic (alumina silica) fiber blanket, mineral wool batt or glass fiber insulation material used as a permanent form. Packing material to be recessed from top surface of floor or from both surfaces of solid concrete or concrete block wall as required to accommodate the required thickness of caulk fill material (Item 4). As an alternate when max pipe size is 10 in. (254 mm) diam and when max annular space is 1 in. (25 mm), a min 1 in. (25 mm) thickness of tightly-packed ceramic

fiber blanket or mineral wool batt packing material may be recessed min 1/2 in. (13 mm) from bottom surface of floor or from either side of solid concrete wall. 4. Fill, Void or Cavity Materials* — Caulk — Applied to fill the annular space to the min thickness shown in the

Max Pipe Diam In.	Max Annular Space In.	Packing Mtl Type (a)	Min Caulk Thkns In.		
10 (254)	1 (25)	BR, CF, GF or MW	1/2 (13) (b)		
10 (254)	1 (25)	CF or MW	1/2 (13) (c)		
30 (762)	2-1/2 (64)	BR, CF, GF or MW	1 (25) (b)		

CF=Ceramic fiber blanket.

GF=Glass fiber insulation.

MW=Mineral-wool batt.

(b) Caulk installed flush with top surface of floor or both surfaces of wall

(c) Caulk installed flush with bottom surface of floor or one surface of solid (non-concrete block) wall **3M COMPANY** — Type CP 25WB+ or FB-3000 WT

concrete for sleeved opening.)

*Bearing the UL Classification Mark

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System No. C-AJ-1001

March 05, 2007

- F Rating ---- 3 Hr

2400 kg/m³) concrete. Wall may also be constructed of any UL Classified Concrete Blocks*. Max diam of circular

C. Conduit --- Nom 4 in. (152 mm) diam (or smaller) steel electrical metallic tubing

(Note - W Rating applies only when FB-3000 WT is used on top surface of floor and when it laps onto

NOTES: C

1. WALL ASSEMBLY PER ARCHITECTURAL PLANS (FIRE/SMOKE RATED OR UNRATED): WOOD OR STEEL STUDS, GYPSUM BOARD, CONCRETE, OR CONCRETE MASONRY. 2. COMMUNICATION CABLES - REFER TO MANUFACTURER'S DOCUMENTATION FOR FILL CAPACITIES

- 3. FIRE/SMOKE SLEEVE. <u>EQUAL TO HILTI #CP 653 BA</u>. SLEEVE SHALL HAVE TWISTING INNER FABRIC FOR SMOKE SEAL AND HEAT ACTIVATED EXPANSION.
- 4. FILL IN VOID CAVITY. IF USING MANUFACTURER'S GASKETED FLANGES, THEN FILL COMPOUND MAY BE STANDARD DRYWALL COMPOUND: OTHERWISE USE A UL LISTED FIRE COMPOUND.

DETAIL - SELF-SEALING SLEEVE DETAIL

NOTES:C

- 1. WALL ASSEMBLY PER ARCHITECTURAL PLANS (FIRE/SMOKE RATED OR UNRATED): WOOD OR STEEL STUDS, GYPSUM BOARD, CONCRETE, OR CONCRETE MASONRY.
- 2. CONDUIT SLEEVE SIZE AS DESIGNATED ON DRAWINGS. MAXIMUM 6" RGS OR 4" EMT. NON-METALLIC CONDUIT SLEEVE SHALL NOT BE ACCEPTABLE. CONDUIT SLEEVE SHALL HAVE INSULATED THROAT WITH THREADED BUSHINGS EACH END. LINE UP CONDUIT SLEEVE WITH BRIDLE RINGS, J-HOOKS OR CABLE TRAY WHERE APPLICABLE.
- 3. FIRESTOPPING FILL, VOID OR CAVITY MATERIALS TO ANCHOR SLEEVE AND RESTORE RATING OF WALL PER STATE AND LOCAL CODES AND AUTHORITY HAVING JURISDICTION.

4. MANUFACTURER'S = 3M, HILTI, SPECIFIED TECH. INC., OR EQUAL.

DETAIL - CONDUIT SLEEVE DETAIL NO SCALE

- DEVICE BOXES INSTALLED ON OPPOSITE SIDES OF A FIRE RATED WALL OR PARTITION SHALL BE SEPARATED BY 24 INCHES OF SPACE AND AT LEAST ONE STUD OR CONCRETE BLOCK.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR REVIEWING THE U.L. REQUIREMENTS FOR ALL FIRE RATED WALLS AND CEILING PENETRATIONS. ALL REQUIREMENTS FOR SEPARATION BETWEEN PENETRATIONS, AGGREGATE AREA OF PENETRATIONS AND CLEARANCES SHALL BE MAINTAINED.
- WHERE DEVICE BOXES ARE INSTALLED AND CANNOT MEET THE U.L. REQUIREMENTS FOR THE FIRE RATED ASSEMBLY, THE DEVICE BOX SHALL BE PROVIDED WITH A U.L. CLASSIFIED (U.L. CATEGORY CLIV) RED MOLDABLE PUTTY PADS APPLIED TO THE BACK OF BOTH DEVICE BOXES TO MAINTAIN THE RATING OF THE ASSEMBLY.
- 3M ™ FIRE BARRIER MOLDABLE PUTTY PADS MPP+ OR EQUAL. **DEVICE BOXES INSTALLED IN** FIRE RATED WALLS - DETAIL NO SCALE

