WITCHITA SCHOOL TORNADO SAFE ROOM WITCHITA, KANSAS

DRAWING INDEX						
COVER SHEET						
SITE & FLOOR PLAN	A1					
ELEVATIONS & SECTIONS						
STRUCTURAL GENERAL NOTES	S1					
STRUCTURAL GENERAL NOTES (CONT.)	S2					
FOUNDTION DETAILS	S3					
ROOF DETAILS	S4					
ELECTRICAL PLAN & SCHEDULES	E1					
PLUMBING PLAN & SCHEDULES	P1					

WITCHITA SCHOOL TORNADO SAFE ROOM

LIMIT OF LIABILITY:

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Because it is not possible to predict or test all conditions that may occur during severe windstorms, or control the quality of construction, among other things, the designer does not warrant the design.

The designer neither manufactures nor sells safe rooms built from this design. The designers have not made and do not make any representation, warranty, or covenant, express or implied, with respect to the design, condition, quality, durability, operation, fitness for use, or suitability of the safe room in any respect whatsoever Designers shall not be obligated or liable for actual, incidental, consequential, or other damages of or to users of safe rooms or any other person or entity arising out of or in connection with the use, condition, and/or performance of safe rooms built from this design or from the

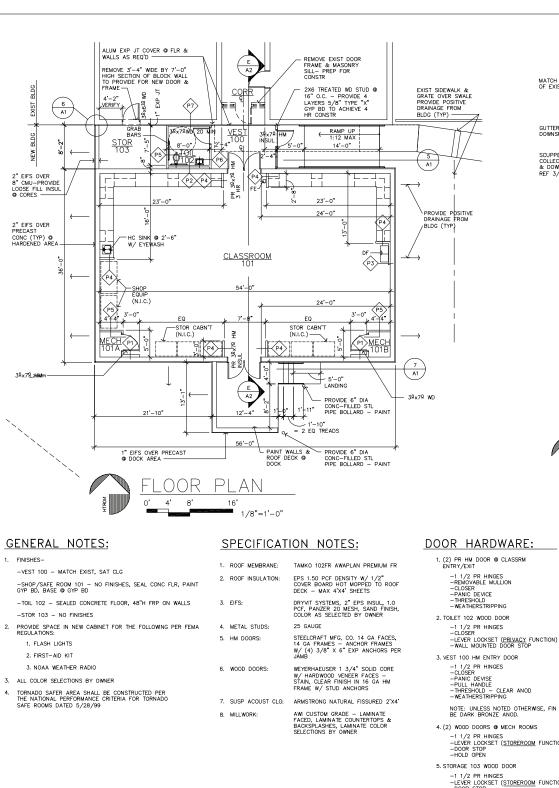
COVER SHEET

SHEET No.

DATE: 7 MARCH 2000

REVISED: AUGUST 2008 REV. NO.







NOTE: UNLESS NOTED OTHERWISE, FIN TO BE DARK BRONZE ANOD.

-1 1/2 PR HINGES
-1 1/2 PR HINGES
-LEVER LOCKSET (STOREROOM FUNCTION)
-DOOR STOP
-HOLD OPEN

-1 1/2 PR HINGES -LEVER LOCKSET (STOREROOM FUNCTION) -DOOR STOP

PARTITION SCHEDULE

SLOPE DI

SLOPE DN

PROVIDE 2"
MIN. INSUL THICKNESS
LOW POINT

(1 A1

GUTTER & DOWNSPOU

SCUPPER, COLLECTOR HEAD & DOWNSPOUT -REF 3/A1

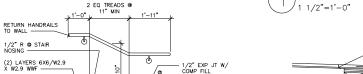
6" MTL STUD @ 16" O.C. W/ 5/8" GYP BD ON EXPOSED SIDE OF STUD - EXTEND TO 10'-0" AFF

3 5/8" MTL STUD @ 16" O.C. W/ 5/8" GYP BD ON EXPOSED SIDE C STUD - EXTEND TO 10'-0" AFF

3 5/8" MTL STUD @ 16" O.C. W/ 5/8" TYPE "X" GYP BD EA SIDE OF STUD W/ SOUND BATTS -EXTEND TO STRUCT ABV

1 5/8" MTL STUD @ 16" O.C. W/ 5/8" TYPE GYP BD ON EXPOSED SIDE OF STUD — EXTEND TO 4" ABV FIN CLG

3 5/8" MTL STUD @ 16" O.C. W/ 5/8" GYP BD ON EXPOSED SIDE C STUD — EXTEND TO 4" ABV FIN CLG



6X6/W2.9 X W2.9 WWF

- (2) #4 REBAR

COMPACTED FILL

5'-0" LANDING

@ DOCK STAIR

NEW SHOP

- FXP JT

STL FRAMING - REF STRUCT

NEW ROOF DRAW & OVERFLOW @ EXIST

EXISTING BUILDING

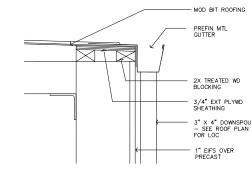
EXP_JT_BELLOWS

- 4" REINF CONC SLAB

A1 SIM.

NOTE: UNLESS NOTED OTHERWISE, ALL ROOF SLOPES ARE 1/4"/ FT MIN.

(1) (A1)



PARAPET DETAIL

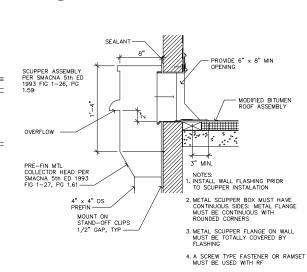
COPING W/ HOLD-DN

TREATED WD 3/4" EXT PLYWD SHEATHING

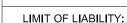
CANT STRIF

MOD BIT OVER FIELD SHEET ON RIGID INSUL OVER TOPPING SLAB ON PRECAST CONC TEES

ROOF DETAIL 1/2"=1'-0"



5. A MINIMUM 3 INCH FLASHING SPLICE IS REQUIRED PAST THE NAIL HEAD ON THE METAL FLANGE OF THE SCUPPER



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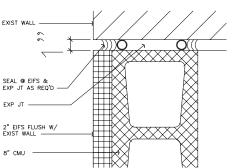
SITE & FLOOR PLAN

SHEET No.: A1

DATE: 7 MARCH 2000 REVISED:

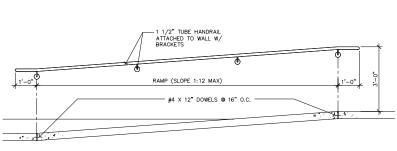


REV. NO.



EXIST WALL

8" CMII

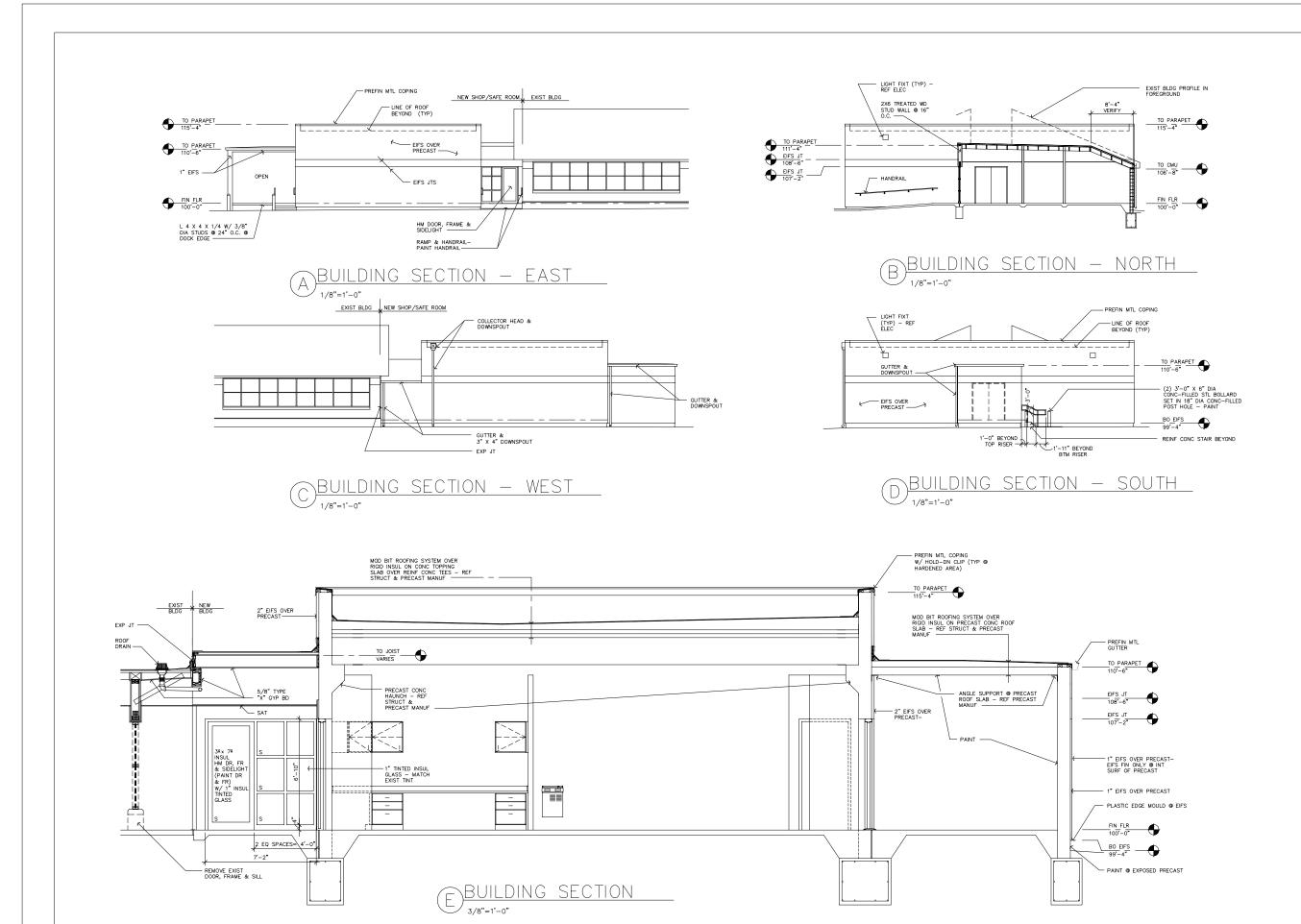


5 DETAIL



DRAIN LEADER (INSUL)

3)SCUPPER DETAIL



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MICHITA, KANSAS

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ELEVATIONS & SECTIONS

SHEET No.: A2

DATE: 7 MARCH 2000

REVISED: REV. NO.



STRUCTURAL GENERAL NOTES

A. DESIGN CRITERIA

- BUILDING CODE: UNIFORM BUILDING CODE (UBC), 1997 EDITION, INCLUDING LOCAL SUPPLEMENTS, ASCE 7-95, & FEMA TORNADO PERFORMANCE CRITERIA.
- 2. GRAVITY LOADS:

LOCATION	UNIFORM LIVE LOAD	CONCENTRATED LIVE LOAD	UNIFORM DEAD LOAD
ROOF	20 PSF		16 PSF
GROUND SNOW	15 PSF		

LIVE LOAD REDUCTION ON SUPPORTING ELEMENTS SHALL BE IN ACCORDANCE WITH THE UNIFORM BUILDING CODE (UBC), 1997 EDITION. NO LIVE LOAD REDUCTION OF ROOF LOADING IS PERMITTED. DRIFTING OF SNOW IN ACCORDANCE WITH CODE. UNIFORM DEAD LOAD IS ADDITIVE TO ACTUAL STRIPLTINED, WEIGHTS

- 3. LATERAL LOADS:
- A. BASIC WIND SPEED SHALL BE 250 MPH. EXPOSURE C. I=1.0.
- B. SEISMIC LOAD SHALL BE FOR ZONE 1.

SLAB ON GRADE 100 PSF 2000 LB

- B. SOIL PREPARATION AND FOUNDATIONS
- A COPY OF THE SUBSURFACE GEOTECHNICAL REPORT IS AVAILABLE FOR INSPECTION AT THE ARCHITECT'S PLACE OF BUSINESS.
- 2. SOIL SUPPORTED FOUNDATIONS:
- A. DESIGN BEARING PRESSURE (NET) IS 2,500 PSF FOR FOUNDATIONS BEARING ON UNDISTURBED SOIL OR 1,500 PSF ON APPROVED ENGINEERED FILL MATERIAL. BEARING MATERIALS SHALL BE VERIFIED BY A LICENSED SOIL ENGINEER.
- B. ALL FOUNDATIONS ARE DESIGNED WITH FORMED SIDES. IF EARTH FORMED SIDES ARE APPROVED BY THE ENGINEER, THE TOP 7 1/4" SHALL BE FORMED TO THE DESIGN DIMENSION AND ONE INCH SHALL BE ADDED TO EACH SIDE OF THE EARTH FORMED AREA TO PROVIDE ADEQUATE COVER OVER THE REINFORCING AT THE CONTRACTOR'S EXPENSE.
- C. REINFORCING SHALL BE SUPPORTED FROM ABOVE OR WITH 3" SBP (WITH BOTTOM PLATE) AT 4'-0" CENTERS MAXIMUM FOR ALL FOUNDATION REINFORCING
- DO NOT BACKFILL FOUNDATION WALLS UNTIL THE RESTRAINING SLABS OR ADEQUATE BRACING ARE IN PLACE. ALL BACKFILL SHALL BE PLACED AND COMPACTED IN ACCORDANCE WITH THE SPECIFICATION.
- EXTERIOR SLABS SHALL SLOPE AWAY FROM THE STRUCTURE A MINIMUM OF 1/4" PER FOOT UNLESS NOTED OTHERWISE.
- C. CAST-IN-PLACE CONCRETE
- ALL STRUCTURAL CONCRETE HAS BEEN DESIGNED IN ACCORDANCE WITH THE ACI 318-95 AND THE BUILDING CODE.
- 2. THE CONCRETE REQUIREMENTS ARE:
- A. CEMENT SHALL BE TYPE I OR II CONFORMING TO ASTM C150.
- B. FINE AND COURSE AGGREGATES SHALL CONFORM TO ASTM C33.
- C. MIX REQUIREMENTS ARE:

LOCATION	F'C F'CI CEM. W/C ENT. PSI PSI PCY RATIO
FOUNDATIONS	4000 N/A 470 0.50 5%+/-1%
GRADE BEAMS	4000 N/A 470 0.50 5%+/-1%
INTERIOR SLAB*	4000 N/A 564 0.50 NR

- * SLAB ON GRADE SHALL HAVE A FLEXURAL STRENGTH OF 650 PSI.
- D. CONCRETE CLEAR COVER OVER REINFORCING SHALL BE IN ACCORDANCE WITH ACI 318-95, AS LISTED BELOW, UNLESS NOTED OTHERWISE.

LOCATION CLEAR COVER INCHES

CAST AGAINST EARTH	3
EXPOSED TO EARTH OR WEATHER #6 AND LARGER	2
EXPOSED TO EARTH OR WEATHER #5 AND SMALLER	1 1/2 3/4
SLABS AND WALLS NOT EXPOSED TO WEATHER	3/4
BEAMS AND COLUMNS NOT EXPOSED TO WEATHER	1 1/2
SLABS ON GRADE (COVER FROM TOP OF SLAB)	1 1/2 1 1/2

- 3. CONCRETE REINFORCING SHALL MEET THE FOLLOWING:
- A. REINFORCING BARS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A615 GRADE 60. REINFORCING BARS REQUIRED TO BE WELDED SHALL CONFORM TO THE REQUIREMENTS OF ASTM A706 GRADE 60. WELDING OF REINFORCING OTHER THAN SPECIFIED IS PROHIBITTED.
- B. WELDED WIRE FABRIC SHALL CONFORM TO THE REQUIREMENTS OF ASTM A185.
- C. ALL REINFORCING SHALL BE CONTINUOUS. CONTINUOUS BARS SHALL LAP IN ACCORDANCE WITH TABLE A UNLESS NOTED OTHERWISE. PROVIDE BENT BARS AT ALL CORNERS.
- D. WELDED WIRE FABRIC SHALL LAP ONE FULL SQUARE PLUS 2".
- E. SHOP DRAWINGS SHALL BE SUBMITTED WITH REINFORCING STEEL DETAILED IN ACCORDANCE WITH ACI 315.
- 4. FORMING AND EMBEDMENTS SHALL MEET THE FOLLOWING:
- A. ALL EXPOSED EDGES OF CONCRETE SHALL BE CHAMFERED 3/4" INSIDE FORMS OR TOOLED TO 3/4" RAD., UNLESS NOTED OTHERWISED.
- B. SLABS ON GRADE SHALL HAVE CONSTRUCTION JOINTS AND CONTROL JOINTS (SAWN JOINTS), LOCATED AS SHOWN ON THE DRAWINGS. CONTRACTOR SHALL LOCATE SLAB JOINTS ON SHOP DRAWINGS.
- C. WHERE NECESSARY, VERTICAL CONSTRUCTION JOINTS SHALL BE LOCATED AT MIDSPAN. ALL JOINTS SHALL BE THOROUGHLY CLEANED AND PURPOSELY ROUGHENED TO 1/4" PRIOR TO PLACING ADJACENT CONCRETE.
- D. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE DESIGN OF ALL FORMING TEMPORARY REACING AND SHORING
- E. NO ALUMINUM SHALL BE EMBEDDED IN CONCRETE. CONDUITS AND PIPING EMBEDDED IN CONCRETE SHALL BE SPACED A MINIMUM OF FOUR DIAMETERS AND THE OUTSIDE DIAMETER SHALL BE LESS THAN 30% OF THE MEMBER THICKNESS PLACED BETWEEN LAYERS OF REINFORCING.

D PRECAST CONCRETE

- ALL PRECAST CONCRETE PRODUCTS SHALL BE DESIGNED IN ACCORDANCE WITH THE BUILDING CODE, ACI 318-95 AND PCI DESIGN HANDBOOK FIFTH EDITION. SHOP DRAWINGS AND CALCULATIONS OF PRECAST PRODUCTS AND CONNECTIONS SHALL BE SUBMITTED BEARING THE SEAL OF AN ENGINEER REGISTERED IN THE STATE WHERE THE PROJECT IS LOCATED. PRECAST SUPPLIER SHALL BE CERTIFIED BY PCI

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- 2. ADDITIONAL DESIGN REQUIREMENTS ARE:
 - A. BEARING PADS SHALL BE DESIGNED AND SUPPLIED BY THE PRECAST MANUFACTURER TO ABSORB ALL REQUIRED MOVEMENT WITHOUT SUPPAGE. THE MINIMUM THICKNESS OF BEARING PADS SHALL BE LOCATED A MINIMUM OF 1/2" AWAY FROM THE FACE OF THE SUPPORT.
- B. MEMBERS SHALL NOT BE REMOVED FROM THE FORMS UNTIL THE CONCRETE HAS REACHED SUFFICIENT STRENGTH TO RESIST REMOVAL WITHOUT DAMAGE. IN NO CASE, SHALL PRECAST MEMBERS BE REMOVED PRIOR TO ATTAINING A MINIMUM COMPRESSIVE STRENGTH OF 2,500 PSI.
- C. PRECAST MEMBERS AND THEIR CONNECTIONS SHALL BE DESIGNED FOR THE LOADS SHOWN ON THE DRAWINGS, IN ADDITION TO THE SELF WEIGHT OF THE MEMBER AND FOR ALL THE CONDITIONS NOTED IN ACI 318-95. CONNECTIONS SHALL BE DESIGNED FOR FORCES AND MOVEMENTS DUE TO VOLUMETRIC CHANGES RESULTING FROM TEMPERATURE CHANGE, ELASTIC DEFORMATIONS, CREEP AND SHRINKAGE. BEAM TO BEAM AND BEAM TO COLUMN CONNECTIONS SHALL BE DESIGNED FOR A MINIMUM ULTIMATE FORCE (HORIZONTAL SHEAR OR TENSION) OF 6 KIPS.
- D. ALL COLUMNS AND WALL PANELS, SUPPORTED ON FOUNDATIONS, SHALL HAVE THE HORIZONTAL JOINT GROUTED WITH A NON-SHRINK GROUT WHICH HAS A COMPRESSIVE STRENGTH AT 28 DAYS EQUAL TO OR GREATER THAN THAT OF THE SUPPORTED MEMBER.

A706 60

- E. FLOOR AND ROOF MEMBERS SHALL BE CONNECTED TO ADJACENT MEMBERS WITH WELDED SIDE ANCHORS SPACED AT 10"-0" CENTERS MAXIMUM, AND A MINIMUM OF TWO ANCHORS PER MEMBER ON EACH SIDE UNLESS NOTED OTHERWISE.
- 3. MATERIALS SHALL MEET THE FOLLOWING REQUIREMENTS:

CONCRETE	MIN. F'C PSI	MIN. CMT FAC	MAX. W/C RAT	
EXT. WALL PANELS ROOF TEES*	5000 5000	470 470		4%+/-19 NR
REINFORCING			ASTM	GRADE

WELDABLE REINFORCING BARS

WELDED WIRE FABRIC

F MASONRY

- ALL MASONRY HAS BEEN DESIGNED BASED ON ALL MASONRY RECEIVING SPECIAL FIELD INSPECTION.
- 2. CONCRETE MASONRY UNITS (CMU) MATERIALS SHALL BE:
- A. ALL CONCRETE MASONRY UNITS (CMU) SHALL BE TWO CELL LIGHTWEIGHT AGGREGATE UNITS WITH A SPECIFIED MINIMUM COMPRESSIVE STRENGTH OF 2000 PSI ON NET AREA (1000 PSI ON GROSS AREA) AT 28 DAYS CONFORMING TO ASTM C90. CMU LOCATED BELOW GRADE, SHALL BE NORMAL WEIGHT AGGREGATE UNITS.
- B. ALL MORTAR SHALL BE TYPE "S" OR "M" WITH A MINIMUM MORTAR COMPRESSIVE STRENGTH OF 1800 PSI AT 28 DAY'S COMPORTANING TO ASTM C270. THE MINIMUM COMPRESSIVE STRENGTH (fM) OF A PRISM ASSEMBLED OF CMU AND MORTAR SHALL BE 1350 PSI AT 28 DAYS ON THE NFT ABFA
- C. GROUT SHALL CONFORM TO ASTM C476 WITH 3/8" AGGREGATE WITH THE FOLLOWING REQUIREMENTS:

MIN. MIN. MAX. AIR F'C CMT W/C ENT. PSI PCY RATIO

CMU GROUT 3000 611 0.65 NR

- D. REINFORCING STEEL SHALL MEET THE REQUIREMENTS OF ASTM A615,
- E. JOINT REINFORCING STEEL SHALL MEET THE REQUIREMENTS OF ASTM A82 WIRE WITH A MINIMUM YIELD GREATER THAN 70 KSI. LONGITUDINAL WIRES SHALL BE 9 GA (0.1483" DIA) WITH TRUSS TYPE WIRES CONNECTED AT 16" CENTERS. REINFORCING SHALL BE MILL GALVANIZED PER ASTM A641. CLASS 3.
- 3. HORIZONTAL WALL REINFORCING
- A. PROVIDE BOND BEAM COURSES IN ALL WALLS AT THE TOP OF WALL OR PARAPET, AT FLOOR LEVELS (ABOVE GRADE), AT TOP OF OPENINGS OR IMMEDIATELY ABOVE LINTELS, BELOW OPENINGS AND AT BEARING LOCATIONS BOND BEAMS SHALL BE ERRINGEDED AS EACH OWN.

WALL TYPE BOND BEAM REINF.

8" CMU 2-#5

ALL INTERIOR STRUCTURAL WALLS (SHEAR AND/OR BEARING) SHALL HAVE INTERMEDIATE BOND BEAMS LOCATED AT THE SAME LEVELS AS FXTERIOR ROND BEAMS.

B. PROVIDE BOND BEAMS AT INTERMEDIATE LOCATIONS IN EVERY SIXTH COURSE (IE: 4'-0" CENTERS).

4. VERTICAL REINFORCING

A. PROVIDE VERTICAL REINFORCING (NORMAL REINFORCING) IN GROUT FILLED CELLS IN ALL WALLS AS FOLLOWS, UNLESS NOTED OTHERWISE:

WALL TYPE REINF. IN MAXIMUM SPACING FILLED CELLS OF FILLED CELLS

8" CMU 1-#5

-**#**5 32"

- B. PROVIDE AN ADDITIONAL VERTICAL REINFORCING BAR WITH DOWELS INTO SUPPORTING MEMBERS, WITH SAME SIZE AND LENGTH AS THE NORMAL REINFORCING BAR, AT THE FOLLOWING LOCATIONS:
 - 1. ON EACH SIDE OF A CONTROL OR ISOLATION JOINT
 - 2. AT INTERSECTION OF WALLS
 - . EACH SIDE OF A WALL OPENING . AT EACH END OF WALL
- 5. AT FACH BEAM BEARING
- C. VERTICAL REINFORCING SHALL EXTEND CONTINUOUSLY FROM THE TOP OF THE SUPPORTING MEMBER TO EMBED AT LEAST 6" INTO THE TOP BOND BEAM. THERE SHALL BE A DOWEL, CAST INTEGRAL WITH THE SUPPORTING MEMBER, FOR EACH VERTICAL REINFORCING BAR EXCEPT AS NOTED.
- REINFORCING SHALL MEET THE FOLLOWING LAP, SPLICE AND EMBEDMENT REQUIREMENTS:

REINF. BAR SIZE	LAP OR SPLICE LENGTH IN WALL	FOUNDATION EMBEDMENT WITH HOOK INTO FOUND.	DOWELS STRAIGHT EMBEDMEN' INTO FOUND
JOINT	16"	N/A	N/A
4	24"	8"	15"
5	25"	10"	19"

HOOKS IF USED SHALL BE ACI STANDARD HOOKS.

6. CELLS WHICH CONTAIN REINFORCING STEEL (VERTICAL CELLS, BOND BEAMS AND LINTELS) SHALL BE FILLED SOLIDLY WITH GROUT.

- VERTICAL CELLS TO BE FILLED SHALL HAVE VERTICAL ALIGNMENT SUFFICIENT TO MAINTAIN A CLEAR UNOBSTRUCTED CONTINUOUS VERTICAL CELL
- BOND BEAM AND JOINT REINFORCING FOR INTERIOR AND EXTERIOR WALLS SHALL BE CONTINUOUS THROUGHOUT, EXCEPT AT CONTROL AND ISOLATION JOINTS, IT SHALL BE AS FOLLOWS:
- A. INTERMEDIATE REINFORCING SHALL BE DISCONTINUOUS AT CONTROL JOINTS. REINFORCEMENT IN BOND BEAMS AT FLOOR AND ROOF DIAPHRAGM LEVELS SHALL BE CONTINUOUS.
- B. AT ISOLATION JOINTS, ALL REINFORCING SHALL BE DISCONTINUOUS.
- BARS AROUND PERIMETER OF OPENINGS SHALL EXTEND NOT LESS THAN 40 BAR DIAMETERS OR 24", WHICHEVER IS LARGER, BEYOND THE CORNER OF THE OPENING. VERTICAL JAMB BARS SHALL BE THE SAME SIZE AND NUMBER AS THE NORMAL VERTICAL REINFORCING. FOUNDATION DOWELS ARE ONLY
- 10. LINTELS OVER OPENINGS, UNLESS NOTED OTHERWISE, SHALL BE:

ENING LINTEL

- 11. ALL MASONRY IN CONTACT WITH SOIL SHALL BE NORMAL WEIGHT UNITS AND HAVE ALL VOIDS FILLED WITH GROUT.
- F. STRUCTURAL WOOD
- 1. ALL WOOD STRUCTURES HAVE BEEN DESIGNED IN ACCORDANCE WITH THE
- 2. THE DESIGN OF THE STRUCTURE IS BASED UPON THE USE OF THE FOLLOWING

A. WOOD

USE WOOD TYPE GRADE Fb PSI PSI

JOISTS SOUTHERN PINE #2 1,050 1,450 1,600,000

STUDS (2 X 4) DOUGLAS FIR #1 1,000 1,450 1,700,000 (2 X 6) DOUGLAS FIR #2 875 1,300 1,600,000

ALL MEMBERS SHALL BE SURFACED DRY AND HAVE A MAXIMUM MOISTURE CONTENT OF 19 PERCENT. STRESS INCREASE SHALL BE 15% FOR LIVE LOAD ONLY.

- B. ROOF SHEATHING SHALL BE 1/2", 7/16" OR 15/32" APA RATED PLYWOOD OR PARTICLE BOARD, 24/0 SPAN RATING, EXPOSURE 1, LAID IN A STAGGERED PATTERN, WITH EDGE CLIPS BETWEEN SUPPORTS, AND CONTINUOUS OVER A MINIMUM OF THREE SUPPORTS.
- C. ALL WOOD PRODUCTS IN DIRECT CONTACT WITH THE FOUNDATION SHALL BE PRESSURE TREATED PER SPECIFICATION.
- 3. CONNECTIONS SHALL MEET THE FOLLOWING REQUIREMENTS:
- A. ALL BOLTS SHALL BE ASTM A307. OVERSIZED WASHERS SHALL BE USED BETWEEN THE HEAD OR NUT AND THE WOOD MEMBER.
- B. WOOD MEMBERS SHALL BE CONNECTED TOGETHER USING THE NAILING SCHEDULE UNLESS NOTED OTHERWISE. NO STAPLES ARE ALLOWED UNLESS NOTED OTHERWISE.

| NAILING | 2-16d | STUE, END-NAIL | SOLE PLATE TO STUD, END-NAIL | SOLE PLATE TO STUD, END-NAIL | 2-16d, 4-8d TOE-NAIL | SOULE TOP PLATE SPLICE | TRUSS TO NON-LOAD TOP PLATE SPLICE | TRUSS TO NON-LOAD TOP PLATE DOUBLE HEADERS W/ 1/2" SPACER | 16d @ 16" CENTERS | 16

- C. ANCHORS TO FOUNDATION SHALL BE 1/2" DIA. ANCHOR BOLTS @ 48" CENTERS MAXIMUM. MINIMUM TWO ANCHOR BOLTS PER SILL BOARD WITH ONE ANCHOR BOLT WITHIN 12" OF EACH END OF EACH PIECE.
- D. PLYWOOD DIAPHRAGMS AND SHEAR WALLS SHALL BE NAILED USING COMMON NAILS, SIZE AND SPACING SHOWN ON PLANS. SPECIAL PLYWOOD NAILS MAY BE SUBSTITUTED AS FOLLOWS:

10 GA. X 2" PLYWOOD NAILS FOR 8d COMMONS 9 GA. X 2 1/2" PLYWOOD NAILS FOR 10d COMMONS

- 4. PROVIDE BRIDGING AT 8'-0" CENTERS MAXIMUM FOR JOISTS AND RAFTERS USING 2X3 CROSS-BRIDGING OR SOLID BLOCKING.
- 6. WOOD HEADERS AND LINTELS SHALL BEAR ON TOP OF A SINGLE STUD AT EACH END FOR OPENINGS LESS THAN 3"-8", BEAR ON TOP OF DOUBLE STUDS FOR OPENINGS GREATER THAN 3"-8" AND LESS THAN 8"-0", AND TRIPLE STUDS FOR OPENINGS GREATER THAN 8"-0", UNLESS NOTED OTHERWISE. SUPPORT STUDS SHALL BE CONNECTED TO AN ADJACENT FULL LENGTH STUD.

(CONTINUED ON SHEET S2)

WITCHITA SCHOOL TORNADO SAFE ROO

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STRUCTURAL NOTES

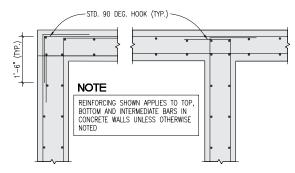
SHEET No.: S-1

DATE: 7 MARCH 200

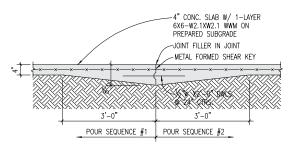


G. MISCELLANEOUS

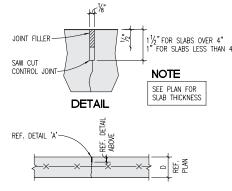
- 1. CONCRETE PADS FOR MECHANICAL AND ELECTRICAL EQUIPMENT ON FLOORS SHALL BE 3 1/2" HIGH UNLESS OTHERWISE NOTED AND REINFORCED WITH #3 BARS ON 12" CENTERS, EACH WX, 1 1/2" RFOM TOP OF SLAB, WHEN THE PAD EXCEEDS 10" IN THICKNESS, REINFORCE WITH #3 BARS ON 12" CENTERS EACH WAY, TOP AND BOTTOM. ANCHOR PAD TO SLAB WITH #4 DOWELS AT 24" CENTERS, EACH WAY, CAST OR EPOXIED INTO SUPPORTING SLAB.
- 2 CONTRACTOR SHALL SUPPLY ALL ITEMS FOR ATTACHING MECHANICAL AND CONTRACTOR SHALL SUPPLY ALL TEMS FOR ATTACHING MECHANICAL AND ELECTRICAL EQUIPMENT TO THE BUILDING STRUCTURE TO RESIST ALL LOADS INCLUDING SEISMIC FORCES. ATTACHMENT SHALL BE MADE SO AS NOT TO OVERSTRESS STRUCTURAL MEMBERS. COORDINATE THE ATTACHMENTS AND LOCATIONS OF THE EQUIPMENT WITH THE STRUCTURAL SHOP DRAWINGS. REFER TO THE MECHANICAL AND ELECTRICAL DRAWINGS FOR ADDITIONAL
- 3. SUBSTITUTION OF EXPANSION ANCHORS FOR ADHESIVE ANCHORS, EPOXY ANCHORS OR EMBEDDED ANCHORS SHOWN ON THE DRAWNGS WILL NOT BE PERMITTED UNLESS APPROVED BY THE ENGINEER IN ADVANCE.
- 4. THE CONTRACTOR SHALL PROVIDE THE FOLLOWING ADDITIONAL SERVICES:
- A. VERIFICATION OF ALL DIMENSIONS, ELEVATIONS, OPENING SIZES, AND MECHANICAL EQUIPMENT WEIGHTS PRIOR TO STARTING WORK.
- B. REMOVE ALL ABANDONED FOUNDATIONS, UTILITIES, PIPELINES, ETC. THAT INTERFERE WITH NEW CONSTRUCTION.
- C. REVIEW AND APPROVE ALL SHOP DRAWINGS PRIOR TO SUBMITTAL, NOTING CHANGES MADE WHICH DO NOT COMPLY WITH DESIGN
- D. PROVIDE TEMPORARY BRACING AND SHORING TO PREVENT EXCESSIVE DEFLECTIONS AND DAMAGE DURING CONSTRUCTION.
 DESIGN OF TEMPORARY BRACING AND SHORING SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
- H. REQUIRED STRUCTURAL INSPECTIONS
- 1. INSPECTIONS BY THE BUILDING OFFICIAL.
- A. FOUNDATION INSPECTION AFTER EXCAVATION AND SOIL PREPARATION, BUT PRIOR TO PLACING REINFORCING. AGAIN, AFTER REINFORCING PLACEMENT AND PRIOR TO CONCRETE PLACEMENT.
- B. CONCRETE SLAB ON GRADE/UNDERFLOOR INSPECTION SHALL BE MADE AFTER ALL UNDERFLOOR EQUIPMENT IS IN PLACE, BUT PRIOR TO CONCRETE PLACEMENT OR OTHER FLOORING PLACEMENT.
- C. FRAMING INSPECTION SHALL BE MADE AFTER ALL ROUGH MECHANICAL ELECTRICAL, AND PLUMBING EQUIPMENT IS IN PLACE, BUT PRIOR TO FIREPROOFING OR WALL COVERING IS INSTALLED.
- D. FINAL INSPECTION SHALL BE MADE WHEN THE CONTRACTOR HAS COMPLETED THE BUILDING AND IT IS READY FOR OCCUPANCY.
- 2. IN ACCORDANCE WITH THE REQUIREMENTS OF THE BUILDING CODE, THE OWNER WILL PROVIDE QUALIFIED PERSONNEL TO PERFORM THE FOLLOWING SPECIAL INSPECTIONS AND REPORT THE FINDINGS TO THE ENGINEER. THIS DOES NOT RELIEVE THE CONTRACTOR OF ANY RESPONSIBILITY TO PERFORM THE WORK IN ACCORDANCE WITH THE DESIGN DRAWNOS. THE CONTRACTOR SHALL NOTIFY THE INSPECTOR 24 HOURS IN ADVANCE OF ALL INSPECTIONS.
- A. EXCAVATIONS, GRADING AND EARTH FILL SHALL BE INSPECTED IN ACCORDANCE WITH THE CODE
- B. FOUNDATION INSPECTION DURING THE PLACEMENT OF PILING,
 DRILLED PIERS, GRADE BEAMS, FOOTINGS, RETAINING WALLS, AND SLABS ON GRADE. ALL EMBEDDED BOLTS SHALL BE INSPECTED.
- C. FRAMING INSPECTIONS DURING THE ERECTION OF ALL STEEL FRAMING MEMBERS. INSPECTIONS OF ALL DECKING PLACEMENT AND ATTACHMENTS.
- D. DUCTILE-MOMENT RESISTING STEEL FRAMES SHALL HAVE WELDS INSPECTED IN ACCORDANCE WITH THE CODE.
- E. HIGH-STRENGTH BOLTS SHALL BE INSPECTED DURING INSTALLATION AND TIGHTENING IN ACCORDANCE WITH THE CODE.
- F. ALL REINFORCING STEEL SHALL BE INSPECTED PRIOR TO CONCRETE PLACEMENT. ALL PRESTRESSING SHALL BE INSPECTED DURING STRESSING AND DURING GROUTING.
- H. DUCTILE MOMENT-RESISTING CONCRETE FRAMES AS REQUIRED IN THE CONCRETE CODE.
- I. STRUCTURAL MASONRY SHALL BE INSPECTED DURING PLACEMENT IN ACCORDANCE WITH THE CODE.
- J. SPRAY-APPLIED FIREPROOFING INSPECTIONS SHALL BE MADE IN ACCORDANCE WITH THE CODE.



TYP. CORNER AND INTERSECTION REINF. NO SCALE



SLAB CONSTRUCTION JOINT (CJ)



TYPICAL SLAB SAWN JOINT (SJ) 3 NO SCALE

TABLE A - REINFORCEMENT TENSION LAPS. EMBEDMENT AND HOOK LENGTHS

fy = 60000 psi $f'c = 3000 \text{ psi} \odot \odot$

(p)	CLEAR	SPACII	NG (S)	2 1 1/000					CLASS B LAP (in) 6 8 TOP BAR 0 OTHER BARS					6		
BAR SIZE	(ii 2d	n) 4 3d	5d	2d <s<3d< td=""><td>S ≥ 3d ①</td><td>S ≥ 5d (2)</td><td>2d<s<3d< td=""><td>S ≥ 3d (1)</td><td>S ≥ 5d (②</td><td>2d<s<3d< td=""><td>S ≥ 3d 🕦</td><td>S ≥5d (②</td><td>2d<5<3d</td><td>S ≥ 3d 🕦</td><td>S ≥5d (2)</td><td>HOOK (in)</td></s<3d<></td></s<3d<></td></s<3d<>	S ≥ 3d ①	S ≥ 5d (2)	2d <s<3d< td=""><td>S ≥ 3d (1)</td><td>S ≥ 5d (②</td><td>2d<s<3d< td=""><td>S ≥ 3d 🕦</td><td>S ≥5d (②</td><td>2d<5<3d</td><td>S ≥ 3d 🕦</td><td>S ≥5d (2)</td><td>HOOK (in)</td></s<3d<></td></s<3d<>	S ≥ 3d (1)	S ≥ 5d (②	2d <s<3d< td=""><td>S ≥ 3d 🕦</td><td>S ≥5d (②</td><td>2d<5<3d</td><td>S ≥ 3d 🕦</td><td>S ≥5d (2)</td><td>HOOK (in)</td></s<3d<>	S ≥ 3d 🕦	S ≥5d (②	2d<5<3d	S ≥ 3d 🕦	S ≥5d (2)	HOOK (in)
3	3/4	11/8	1%	16	16	16	13	13	13	21	21	21	16	16	16	9
4	1	1 1/2	21/2	22	22	22	17	17	17	28	28	28	22	22	22	11
5	11/4	1%	31/8	27	27	27	21	21	21	35	35	35	27	27	27	14
6	11/2	21/4	3 ³ ⁄ ₄	35	32	32	27	25	25	46	42	42	35	32	32	17
7	1 3/4	25/8	43//8	48	38	38	37	29	29	63	49	49	48	38	38	20
8	2	3	5	63	45	43	49	35	33	82	59	56	63	45	43	22
9	21/4	3%	5%	80	57	48	62	44	37	104	74	63	80	57	48	25
10	2.54	3.81	6.35	102	73	58	78	56	45	132	94	76	102	73	58	28
11	2.82	4.23	7.05	125	89	71	96	69	55	162	116	93	125	89	71	31

NOTES FOR USE WITH TABLE A

- . LENGTHS SHOWN CONFORM WITH NON-SEISMIC PROVISIONS OF ACL 318-89 FOR UNCOATED BARS NOT ENCLOSED BY CLOSELY SPACED SPIRALS OR TIES. DEVELOPMENT OF REINFORCEMENT NOT COVERED BY THE TABLE SHALL CONFORM WITH ACI 218-89.
- . MULTIPLY LENGTHS SHOWN BY 0.87 FOR 4000 PSI CONCRETE, BUT LENGTH OF LAP SHALL NOT BE LESS THAN 12 INCHES.
- 3. MULTIPLY LENGTHS SHOWN BY 1.3 FOR LIGHTWEIGHT AGGREGATE CONCRETE.
- . BAR CLEAR SPACING IS THE CENTER TO CENTER BAR SPACING MINUS TWO BAR DIAMETERS WHEN ALL BARS ARE LAPPED AT THE SAME LOCATION. WHEN BAR LAPS ARE STAGGERED TO LAP HALF THE BARS AT THE SAME LOCATION, THE BAR CLEAR SPACING IS TWICE THE CENTER TO CENTER BAR SPACING MINUS TWO BAR DIAMETERS WHEN ALL BARS ARE EMBEDDED AT THE SAME LOCATION,
 THE BAR CLEAR SPACING IS THE CENTER TO CENTER BAR SPACING MINUS ONE BAR DIAMETER.
- CLASS A LAP LENGTHS APPLY WHEN BAR LAPS ARE LOCATION OR WHEN BARS ARE LAPPED AT A LOCATION OF MINIMUM STRESS IN THE BARS.

- 6. LAP AND EMBEDMENT LENGTHS SHOWN APPLY WHEN BAR MINIMUM CONCRETE COVER OVER BARS CONFORMS WITH VALUES GIVEN IN THE TABLE FOR "CONCRETE COVER".

 THESE COVER VALUES CONFORM WITH ACI 318-89.
- 7. CLASS A LAP AND EMBEDMENT LENGTH HAVE SAME VALUE 8. CLASS B LAP LENGTHS APPLY WHEN ALL BARS ARE
- SPLICED AT A LOCATION OF MAXIMUM STRESS IN THE BARS. 9. HOOK LENGTH GIVEN IS THE STRAIGHT LINE DISTANCE FROM THE LOCATION OF MAXIMUM STRESS IN THE BAR TO THE
 OUTSIDE END OF THE HOOK. MULTIPLY LENGTHS GIVEN BY 0.7 FOR HOOKS WITH SIDE COVER NORMAL TO THE
 HOOK NOT LESS THAN 2 ½ INCHES AND FOR 90
 DEGREE HOOKS COVER ON BAR EXTENSION BEYOND HOOK
- NOT LESS THAN 2 INCHES. 10. TOP BARS ARE HORIZONTAL REINFORCEMENT PLACED SO THAT MORE THAN 12 INCHES OF CONCRETE IS CAST BELOW THE REINFORCEMENT.
- 11 MULTIPLY LAP AND EMBEDMENT LENGTHS GIVEN BY 2.0. FOR BARS WITH CLEAR SPACING OF TWO BAR DIAMETERS OR LESS, OR CONCRETE COVER OF ONE BAR DIAMETER
- 12. MIINIMUM CONCRETE COVER FROM FACE OF MEMBER TO EDGE BAR SHALL NOT BE LESS THAN TWO AND ONE HALF BAR DIAMFTERS

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LIMIT OF LIABILITY:

The designs included herein are based on extensive research of the causes and effects of windstorm damage to

Shelters designed and built to these designs should provide a high degree of occupant protection during tornadoe

Any substitutions of either materials or design concepts may decrease the level of occupant protection and/or Increase the possibility of personal Injury during a severe wind event.

Because it is not possible to predict or test all conditions that may occur during severe windstorms, or control the quality of construction, among other things, the designer does not warrent

The designer neither manufactures nor sells shelters built from this design. The designers have not made and do not make any representation, warranty, or covenant, express or Implied, with respect to the design, condition, quality, durability, operation, fitness for use, or sultability of the shelter in any respect

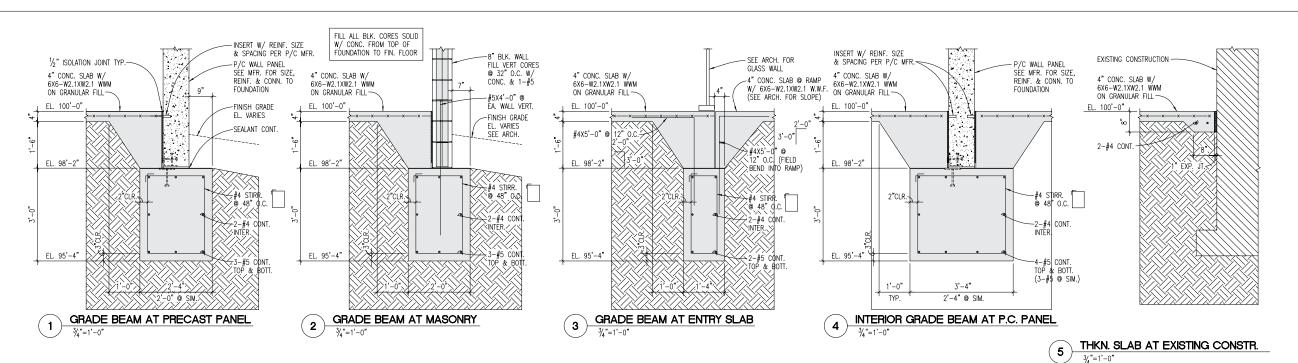
Designers shall not be obligated or liable for actual, incidental, consequential, or other damages of or to users of shelters or any other person or entity arising out of or in connection with the use, condition, and/or performance of shelters bullt from this design or from the maintainenc thereof.

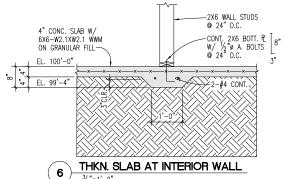
STRUCTURAL NOTES

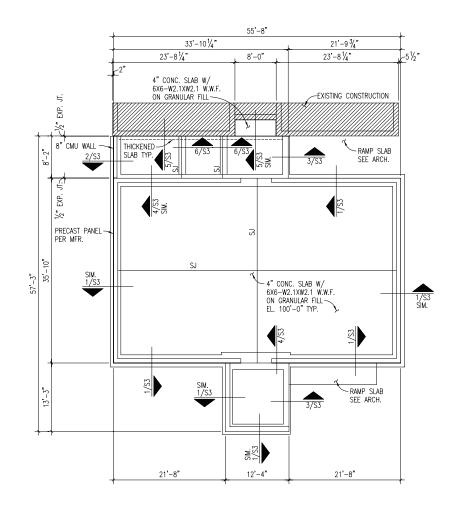
SHEET No.: S-2

DATE: 7 MARCH 200











WITCHITA SCHOOL TORNADO SAFE ROOM

KANSAS

WICHITA, I

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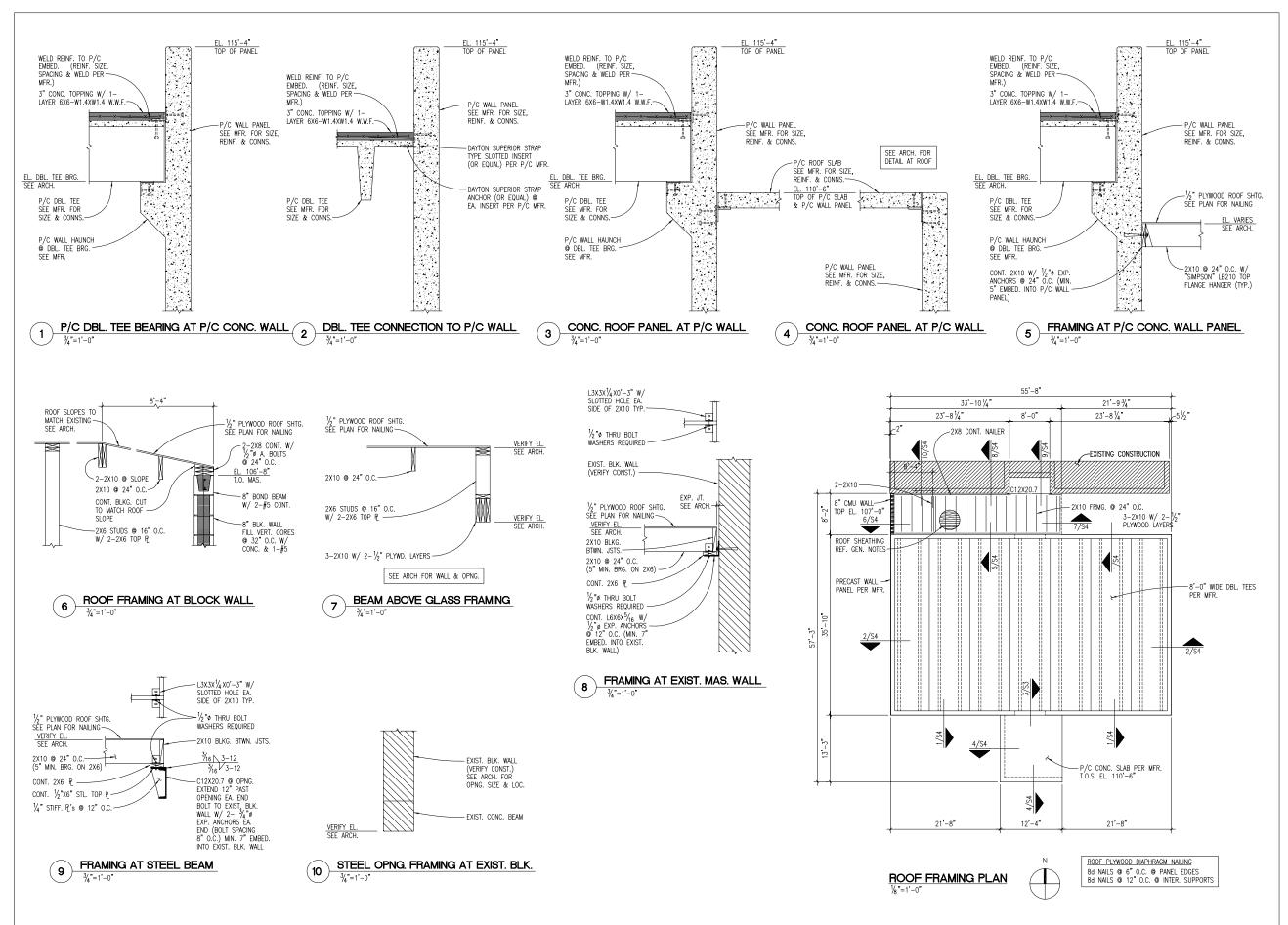
Designers shall not be obligated or liable for actual, incidental, consequential, or other damages of or to users of shelters or any other persor or entity arising out of or in connection with the use, condition, and/or performance of shelters built from this design or from the maintainence thereof.

FOUNDATION DETAILS

SHEET No.: \$-3

DATE: 7 MARCH 2000





WITCHITA SCHOOL TORNADO SAFE ROOM

KANSAS

WICHITA,

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ROOF DETAILS

SHEET No.: S-4

DATE: 7 MARCH 2000

D: REV. NO.



GENERAL NOTES

- ALL WORK SHALL COMPLY WITH LOCAL, STATE AND NATIONAL CODES.
- THE ELECTRICAL CONTRACTOR SHALL SECURE AND PAY FOR ALL PERMITS, FEES, INSPECTIONS AND CERTIFICATES REQUIRED.
- THE ELECTRICAL CONTRACTOR SHALL FURNISH ALL LABOR, MATERIAL, TOOLS, TRANSPORTATION, AND EQUIPMENT REQUIRED FOR THE COMPLETE, PROPER AND SUBSTANTIAL INSTALLATION OF ALL ELECTRICAL WORK INDICATED OR REQUIRED FOR A COMPLETE WORKING INSTALLATION OF ALL ELECTRICAL SYSTEMS.
- REFER TO ARCHITECTURAL, STRUCTURAL AND MECHANICAL PLANS FOR RELATED INFORMATION
- REFER TO MECHANICAL PLANS AND SPECIFICATIONS FOR EXACT LOCATION OF MECHANICAL EQUIPMENT AND T-STAT LOCATIONS. FUSING OF MECHANICAL EQUIPMENT AS PER NAME PLATE DATA ON EQUIPMENT.
- ALL LINE VOLTAGE WIRING SHALL BE COPPER IN STEEL CONDUIT & STEEL, BOXES, UNLESS SPECIFICALLY NOTED OTHERWISE. EACH CONDUIT CONTAINING INEV VOLTAGE SHALL CONTAIN A GREEN, INSULATED GROUND CONDUCTOR, ALL CONDUITS ROUTING SHALL BE INSTALLED PARALLEL AND PERPENDICULAR. ALL CONDUIT PERETRATIONS OF FIRE RATED WALLS SHALL BE SEALED WITH A APPROPRIATELY RATED FIRE STOP MATERIAL.
- STRAIGHT RUNS UNDERGROUND / IN SLAB CONDUIT MAY BE SCHEDULE 40 PVC, AJ/4" MINIMUM WITH <u>STEEL ELLS, BENDS AND RISERS.</u> SLAB OR EXTING FROM EARTH SHALL BE RIGID STEEL. NO EXCEPTIONS.
- 8. ALL CONDUITS STUBBED OUT OF BUILDING, SHALL BE CAPPED AND MARKED
- ALL CONDUITS STUBBED INTO THE CEILING CAVITY FOR MECHANICAL CONTROLS, FIRE ALARM, DATA, COMMUNICATIONS, TELEVISION, CLOCKS, INTERCOM, ETC. SHALL BE PROVIDED WITH A PRESS ON, INSULATING BUSHING. ARLINGTON INDUSTRIES # EMT SERVES OR EQUAL.
- 10. VERIFY ALL OUTLET LOCATIONS ON JOB, PRIOR TO ROUGH-IN.
- EXTERIOR EXPOSED CONDUIT RUNS WILL NOT BE PERMITTED. (EXCEPT FOR SERVICE ENTRANCES POWER/TELEPHONE OR NOTED OTHERWISE ON PLAN.)
- 12. REFER TO ARCHITECTURAL PLANS/SPECIFICATIONS FOR A DETAILED DESCRIPTION OF ALL ALTERNATES. ELECTRICAL WORK MAY BE INVOLVED THAT DOES NOT SHOW ON THE ELECTRICAL PLANS.
- 13. ALL NEW CONDUIT SHALL BE INSTALLED CONCEALED INSIDE CONSTRUCTION.
 ANY NEW SURFACE MOUNTED RACEWAYS, IN FINISHED AREAS, SHALL BE APPROVED
 IN WRITING BY THE ARCHITECT PRIOR TO INSTALLATION. NO EXCEPTIONS.
 SURFACE MOUNTED RACEWAY IN NON-SHOP FINISHED AREAS SHALL BE WIREMOLD
 #500/700 RACEWAY. RUNS SHALL BE PARALLEL/PERPENDICULAR TO STRUCTURE.
 FASTEN TO WALLS (ANCHORS IN SOLID WALLS) / TOGGLE ANCHORS IN HOLLOW
 WALLS) EVERTY 36". E.C. RESPONSIBLE FOR PAINTING RACEWAYS TO MATCH SURROUNDINGS, EITHER FOR EXISTING AREAS AND/OR NEW CONSTRUCTION. EMT CONDUIT IS ACCEPTABLE INSIDE NEW SHOP/CLASS ROOM AREA.
- 14. E.C. SHALL VISIT SITE TO DETERMINE: 1.) EXISTING CONDITIONS. 2.) THE EXTENT OF DEMOLITION. ANY CONFLICTS BETWEEN PLANS/SPECIFICATIONS AND ACTUAL EXISTING CONDITIONS THAT AFFECT CONSTRUCTABILITY, SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER PRIOR TO BID. NO EXCEPTIONS.
- 15. ALL PANELS SHALL BE PANELBOARD CONSTRUCTION WITH BOLT-IN CIRCUIT BREAKERS, COPPER BUS AND COPPER GROUND BUS.
- 15. TELEPHONE OUTLETS: ◀
 EMPTY 4" SQUARE BOX WITH A SINGLE GANG PLASTER RING AND BLANK PLATE.
 PROVIDE 3/4" C. WITH PULL WIRE FROM OUTLET TO ABOVE ACCESSIBLE CEILING.
 CONDUCTORS, CONDUCTOR INSTALLATION AND TERMINATIONS NOT IN CONTRACT.
- . CRT/DATA OUTLETS: ♥
 EMPTY 4" SQUARE BOX WITH A SINGLE GANG PLASTER RING AND BLANK PLATE.
 PROVIDE 3/4" C. WITH PULL WIRE FROM OUTLET TO ABOVE ACCESSIBLE CEILING.
 CONDUCTORS, CONDUCTOR INSTALLATION AND TERMINATIONS NOT IN CONTRACT.
- 8. MECHANICAL/TEMPERATURE CONTROL WIRING NEED NOT BE INSTALLED IN CONDUIT ABOVE ACCESSIBLE CEILINGS, UNLESS SPECIFICALLY NOTED OTHERWISE. REFER TO THE MECHANICAL PLANS AND SPECIFICATIONS. CONDUIT IS REQUIRED FOR VERTICAL RUNS IN WALLS AND WHERE EXPOSED. ALL CONDUIT REQUIRED, SHALL BE PROVIDED AND INSTALL BY THE E.C. REQUIRED CONDUCTORS AS FOLLOWS:

 1. ALL LINE VOLTAGE SUPELY (CONSTANT) POWER WIRING SHALL BE PROVIDED AND INSTALLED IN CONDUIT BY THE E.C.

 2. ALL LOW AND LINE VOLTAGE CONTROL (SWITCH-ED) WIRING, WIRING INSTALLED IN CONDUIT STALLED IN CONDUIT STALLED IN STALLED IN CONDUIT SOME SHALL BE PROVIDED AND INSTALLED IN CONDUIT OF UNITED AND INSTALLED IN CONDUIT OF UNITED AND INSTALLED IN CONDUIT. CONDUIT FOR LINE VOLTAGE CONTROL WIRING ALL BE INSTALLED IN CONDUIT. CONDUIT FOR LINE VOLTAGE CONTROL WRING BY E.C.)
- N.E.C ART 300-11(B): RACEWAYS SHALL NOT BE USED AS A MEANS OF SUPPORT FOR CABLES OR NONELECTRICAL EQUIPMENT.
- "BACK TO BACK" MOUNTING OF DEVICES IN WALLS IS NOT ALLOWED. MINIMUM OF ONE STUD SPACE BETWEEN DEVICES.
- 20. E.C. IS RESPONSIBLE FOR THE RELOCATION OF ALL ELECTRICAL DEVICES, EXISTING OR NEW, DUE TO ANY ARCHITECTURAL MODIFICATIONS. REFER TO THE ARCHITECTURAL PLANS, SPECIFICATIONS AND ADDENDA FOR: NEW DOOR LOCATIONS, WALL REMOVAL, WALL ADDITIONS, CEILING MODIFICATIONS, ETC.
- REFER TO THE ARCHITECTURAL PLANS/SPECIFICATIONS FOR A COMPLETE, DETAILED LIST OF ALL ALTERNATES.
- 22. THE MOUNTING HEIGHTS OF THE ELECTRICAL DEVICES ARE TO THE CENTER OF THE DEVICE. REFER TO THE SYMBOL LIST. SPECIAL MOUNTING HEIGHTS ARE SHOWN ADJACENT TO THE DEVICE. ALL MOUNTING HEIGHTS LISTED ARE FROM ABOVE FINISHED FLOOR. (AFF)
- ABOVE FINISHED PLOOR. (AFT)

 EXCEPTION:

 E.C. SHALL COORDINATE THE MOUNTING OF FLUSH MOUNTED DEVICES IN MASONRY

 E.C. SHALL SWITH THE MASONRY CONTRACTOR. MOUNTING HEIGHTS WILL BE

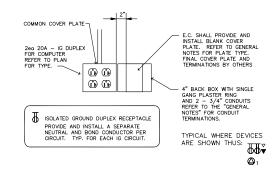
 DETERMINED BY ACTUAL BLOCK CONFIGURATION. MOUNT DEVICES SUCH THAT

 THE EDEC OF THE COVER PLATE IS EVEN WITH THE TOP OR BOTTOM OF THE

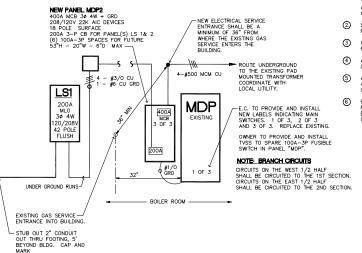
 BLOCK. DO NOT OVERLAP JOINT. MOUNT DEVICES IN A SINGLE BLOCK.
- 23. E.C. SHALL PROVIDE AND INSTALL A SINGLE GANG BOX, 48" AFF WITH 1/2" CONDUIT TO ABOVE ACCESSIBLE CEILING FOR T-STATS. REFER TO THE MECHANICAL PLANS FOR PLACEMENT OF T-STATS.
- 25. DO NOT MOUNT DISCONNECT SWITCHES ON ACCESSIBLE PANELS FOR RTU'S, AHU'S, ETC. E.C. SHALL PROVIDE AND INSTALL PROPER SUPPORTS TO MOUNT SWITCH, CLEAR OF ALL ACCESSIBLE PANELS.
- 26. REFER TO THE ARCHITECTURAL PLANS FOR THE EXTENT OF ALL DEMOLITION.
- 23. E.C IS RESPONSIBLE FOR RETAINING THE CONTINUITY OF EACH EXISTING BRANCH CIRCUIT. SPECIAL ATTENTION SHALL BE GIVEN TO THOSE CIRCUITS WHICH WILL BE ALTERED DUE TO THE DEMOLITION AND/OR NEW CONSTRUCTION.
- I. E.C. SHALL COORDINATE ANY "DOWN TIME" OF ANY SYSTEM WITH THE OWNER. THIS INCLUDES BUT NOT LIMITED TO: EMERGENCY LICHTING, FIRE ALARM SYSTEM, COMMUNICATION SYSTEM, DATA SYSTEM, ORDMAL POWER, ETC. E.C. SHALL INFORM OWNER, IN WRITING, 5 WORKING DAYS PRIOR TO "SCHEDULED SHUTDOWNS". LIFE SAFETY SYSTEMS SUCH AS FIRE ALARM AND EMERGENCY LIGHTING MUST REMAIN ACTIVE AT ALL TIMES WHEN THE SPACE IS OCCUPIED.

30A-3P-3R

29. EACH BRANCH CIRCUIT SHALL HAVE IT'S OWN SEPARATE NEUTRAL. DO NOT COMBINE MULTIPLE BRANCH CIRCUITS WITH A COMMON NETURAL.

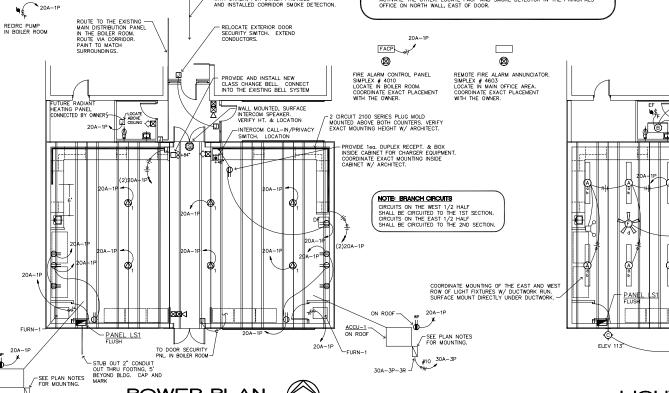


WORK STATION DETAIL



DISTRIBUTION DIAGRAM

POWER PLAN



LIGHT FIXTURE SCHEDULE

4	MFG. & CATALOG NUMBER	VOLT	LAMPS	MOUNTING
Α	LITHONIA # 8TLB332-120ES 56	120	3 - F032/741	18" STEM SET
В	WILLIAMS # 50G-S24-2320C-SWKA125-ET8 (51)	120	2 - F032/741	TROFFER
С	LITHONIA # TWH-70S-120	120	1 - LU70	WALL @ 12'
D	LITHONIA # TWH-100S-120	120	1 - LU100	WALL @ 12'
F	PATTON # 989W WHITE 3 SPEED/REVERSIBLE	120	NONE	36" PENDANT
⊗	SURE-LITE # CAX-7-1/2-70-R-120/277 1	3	FURNISHED W/UNIT	CEILING
€⊢	SURE-LITE # CAX-7-1/2-70-R-120/277 ①	3	FURNISHED W/UNIT	WALL
	SURE-LITE # RD-3 (MINI HEADS)		FURNISHED W/UNIT	RECESSED CLG
("	SURE-LITE # XR11-215 (WG = WIRE GUARD)		FURNISHED W/UNIT	WALL)

SPECIFICATION GRADE TROFFER EQUALS:
 WILLIAMS SERIES 50, LITHOWA SERIES 2SP-APAF, METALUX SERIES 2GC, COLUMBIA SERIES 4000-PAF
 ENTIRE FIXTURE SHALL BE POST PAINTED INCLUDING SOCKET RAILS, BALLAST COVER, END PLATES, DOOR FRAME,
 ETC. LENS: .125 NOMINAL THICK EQUAL TO KSH-12.

EXIT SIGN EQUALS: PRESCOLITE "COMPASS" SERIES LITHONIA " SIGNATURE" SERIES

ALL SUBSTITUTIONS SHALL BE REVIEWED AT SHOP DRAWINGS FOR ACCEPTANCE OR REJECTION. ATTENTION SHALL BE GIVEN TO LAMPS, VOLTAGE, MOUNTING, PHYSICAL DIMENSIONS, FINISHES, PHOTOMETRICS, ETC.

- ② SURFACE MOUNTED FIXTURES MOUNTED TO A "T" BAR CEILING GRID SHALL BE FASTENED TO THE GRID IN FOUR PLACES TO INSURE RIGID SUPPORT.
- 3 CONNECT TO UNSWITCHED LEG OF LOCAL AREA LIGHTING CIRCUIT. REFER TO THE LIGHTING PLANS FOR EXIT SIGN FACE AND ARROW DIRECTIONS. 120/277 VOLT. PROVIDE BATTERY FOR EXITS AND EGRESS FIXTURES.
- 4 ALL HID FIXTURES SHALL BE "BURNED-IN" AS PER LAMP MANUFACTURER'S RECOMMENDATIONS TO INSURE PROPER LAMP LIFE.
- ALL FLUORESCENT FIXTURES SHALL BE SUPPLIED WITH INSTANT START, 20K HZ ELECTRONIC BALLAST(S).
 ACCEPTED BALLASTS: MOTOROLA/GE G-IN SERIES, ADVANCE REL/VEL P SERIES, EQUAL BY SYLVANIA AND UNIVERSALL BALLASTS SHALL BE COMPATIBLE WITH LAMPS.
- 6 FIXTURES DESIGNATED "a,b" SHALL BE SWITCHED FOR DUAL LEVEL ILLUMINATION. OUTBOARD LAMPS SEPARATE FROM INBOARD LAMPS.

 E.C. OPTION: MASTER / SLAVE FIXTURES (CONSIDER ODD NUMBER OF FIXTURES WITHIN AN AREA)

 OR PROVIDE EACH FIXTURE WITH 2 BALLASTS.

SCOPE OF WORK

- INTERCOM SYSTEM: E.C. SHALL PROVIDE CONDUIT, BOXES AND WRING FOR THE NEW INTERCOM EQUIPMENT. DEEP WIREMOLD BOX FOR THE CALL—IN SWITCH.
 SHALDW WIREMOLD STEP OF HER FEWER. MIRING FROM THE IN W. CLASSROOM INTERCOM, FOR THE CONTROL OF THE CONTROL OF
- SECURITY SYSTEM:
 E.C. SHALL RELOCATE DOOR SWITCH FROM THE EXISTING SOUTH EXTERIOR DOOR
 TO THE NEW EAST EXTERIOR DOOR. (APPROX 10' TO THE S.E.)
 E.C. TO PROVIDE AND INSTALL J-BOX, CONDUIT/WREMOLD, AND CONDUCTORS
 FROM THE RIW SET OF DOUBLE DOORS (SOUTH) TO THE EXISTING SECURITY
 PANEL IN THE BOILER ROOM. ALLOW 36" OF CONDUCTORS AT TERMINATION
 POINTS FOR OWNER CONNECTIONS. VERIFY CONDUCTOR AT TERMINATION
 OWNER SHALL PROVIDE AND INSTALL: SECURITY DEVICES AND CONNECTIONS.
- FIRE ALARM: PROVIDE AND INSTALL A NEW SIMPLEX 4010 FACP AND NECESSARY NEW DEVICES AS SHOWN ON PLAN. PROVIDE AND INSTALL RECESSARY WRING AND CONNECTIONS AS REQUIRED FOR A COMPLET AND OPERATIONAL SYSTEM. CONNECT THE NEW AND EXISTING FIRE ALARM SYSTEMS TOGETHER. EITHER SYSTEM SHALL ACTIVATE THE OTHER. LOCATE FACP AND SMOKE DETECTOR IN THE PRINCIPALS OFFICE ON NORTH WALL, EAST OF DOOR.

SYMBOL LIST

SYMBOL	DESCRIPTION	MOUNTING
AFF	ABOVE FINISHED FLOOR	
ст	MOUNTED ABOVE COUNTER TOP	VERIFY HT.
EM	CONNECTED TO EMERGENCY POWER	
NL	NIGHTLIGHT, WIRE FOR CONTINUOUS OPERATION	
WP	WEATHER PROOF	
3R	NEMA 3R ENCLOSURE	
TTB	TELEPHONE TERMINAL BOARD	
a,b,c,d E.C. M.C.	SWITCH DESIGNATION (LIGHTS, FANS ETC.)	
G.C. T.C.C	ELECTRICAL CONTRACTOR, MECHANICAL CONTRACTOR GENERAL CONTRACTOR, TEMP. CONTROL CONTRACTOR	
\$ ₂ \$ ₃ \$ ₄ \$ ₅ \$ ₆	SWITCHES (2-POLE, 3-WAY, 4-WAY, PILOT, KEY) FUSTAT IN BUSS FUSETRON BOX COVER UNIT W/ SW.	4'-0" AFF ON EQUIPMENT
\$ <u>`</u>	MOTOR SPEED CONTROL , SIZE AS INDICATED	4'-0" AFF
БФ ▲	WORK STATION - SEE DETAIL	1'-4" AFF
₽	20 A. 125 V. IG DUPLEX RECEPTACLE FOR COMPUTER HUBBELL # IG 5362 ORANGE. SEPARATE NEUTRAL AND BOND CONDUCTORS PER CIRCUIT. IG CONDUCTORS IN SEPARATE RACEWAY SYSTEM.	1'-4" AFF
Ф.,	20 A. 125 V. DUPLEX GROUNDED RECEPTACLE	1'-4" AFF
•	20 A. 125 V. DUPLEX GFI RECEPTACLE - 5 mA FEED THRU PROTECTION TO NORMAL RECEPTACLES IS NOT ACCEPTABLE.	1'-4" AFF
6	20 A. 125V. 1/2 SWITCHED DUPLEX RECEPTACLE	1'-4" AFF
444	20 A. 125 V. DOUBLE DUPLEX GROUNDED RECEPTACLE	1'-4" AFF
∯DF	20 A. 125 V. SINGLE DUPLEX GROUNDED RECEPTACLE	HORIZONTAL
φ. φ	FOR DRINKING FOUNTAIN. CONCEAL BEHIND FOUNTAIN 15 A. 125 V. CLOCK RECEPTACLE MOTOR	6'-6" AFF
D	JUNCTION BOX	
	SPECIAL DEVICE AS NOTED	
	CONDUIT RUN 1/2" CONDUIT	WALL, CEILING
/	CONDUIT RUN 3/4" CONDUIT MINIMUM	FLOOR, EARTH
	CONDUIT RUN W/ 3 HOTS, 1 NEUTRAL, & 1 GROUND	
$\overline{}$	TO PANEL - CIRCUIT AS INDICATED (20A1P. BREAKER UNLESS OTHERWISE INDICATED)	
*	PARTIAL CIRCUIT	
	120/208 V. 30 4W. CIRCUIT BREAKER PANELBOARD	6'-0" TO TOP
	FUSED DISCONNECT SWITCH - HEAVY DUTY	
\boxtimes	MAGNETIC MOTOR STARTER	6'-0" TO TOP
(A)	FLUORESCENT FIXTURE - AND FIXTURE DESIGNATION	CEILING
∅1	SEE WORKSTATION DETAIL, THIS SHEET.	
⊠	FIRE ALARM MANUAL PULL STATION	4'-0" AFF
⊳⊠	FIRE ALARM UNIT — COMBINATION AUDIO/VISUAL 80"AFF OR 6" BELOW THE CEILING WHICHEVER IS LOWER. 30/110 cd	AS PER ADA
÷⊠	FIRE ALARM UNIT — STROBE ONLY 80"AFF OR 6" BELOW THE CEILING WHICHEVER IS LOWER. 30/110 cd	AS PER ADA
FACP	FIRE ALARM CONTROL PANEL - SIMPLEX 4010	

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LIGHTING PLAN

VIA PHOTOCELL

-C- FIEV 113

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LIMIT OF LIABILITY:

The designs included herein are base on extensive research of the causes and effects of windstorm damage to buildings.

Safe Rooms designed and built to these designs should provide a high degree of occupant protection

during tornadoes Any substitution of either materials or design concepts may decrease the level of occupant protection and/or increase the possibility of personal

injury during a severe wind event.

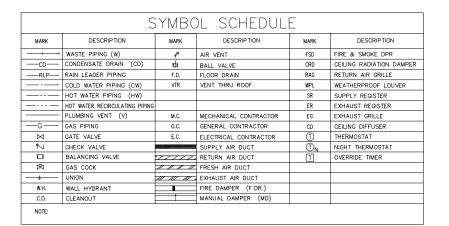
Because It is not possible to predict o test all conditions that may occur during severe windstorms, or control the quality of construction, among other things, the designer does not warrant the design.

The designer neither manufactures nor sells safe rooms built from this design. The designers have not made and do not make any representation. warranty, or covenant, express or implied with respect to the design condition, quality, durability, operation fltness for use, or sultability of the safe room in any respect whatsoever Designers shall not be obligated or liable for actual, incidental, consequential, or other damages of or to users of safe rooms or any other person or entity arising out of or in connection with the use, condition, and/or performance of safe rooms built from this design or from the maintenance thereof.

ELECTRICAL PLAN

SHEET No.: F-1 DATE: 7 MARCH 2000







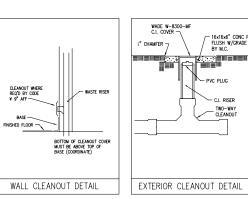
EVAPORATOR COIL SCHEDULE													
MARK	CFM	COOLING BTUH @ ARI	MIN. ROWS	FACE AREA	REFRIG. SUCTION	REFRIG. LIQUID	CONDENSATE DRAIN	USED WITH	MAX. S.P.	REMARKS			
EC-1	1450	43,500	3	5.50	i* OD	?" OD	1"	FURN-1	0.25"				

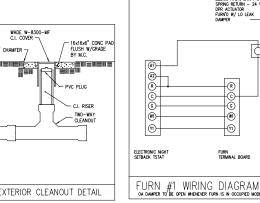
	FURNACE SCHEDULE												
MARK CFM EXT. BTUH ® AGA BLOWER MOTOR S.P. INPUT OUTPUT REQ'D MIN* H.P. R.P.M. CURRENT							FLUE SIZE	FIL TYPE	TERS MIN. SIZE	GAS CONN.	O.A. CFM	REMARKS	
FURN-1							1/3 1075 115/60/10	2"ø PVC TA 2	20x25x2	3/4"	225		
NOTE	NOTE: * OUTPUT												

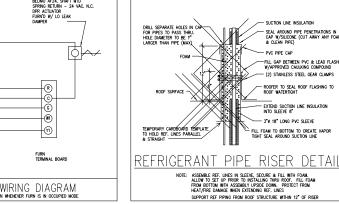
	AIF	R COC	LEC) CON	1DEN	1SIN	G U	NIT	SCHEDULE
MARK		REQ'D MIN TOTAL BTUH CLG @ ARI		PRESSOR CURRENT	CONDENSER FAN AMPS	SEER	MIN. CIRCUIT AMPS	REC. FUSE SIZE	REMARKS
ACCU-1	43,500	43,000	14.9	208/60/3ø	1.7	10.05	20	30	
NOT	E;								

EXHAUST FAN SCHEDULE										
MARK	CFM	S.P.	H.P.	FAN R.P.M.	TIP SPEED	CURRENT	DRIVE	REMARKS		
<u>EF-1</u>	100	1/4"	60W	1100	-	115/60/1ø	DIRECT	COOK LITTLE GEM		
NOTE:										

DIFF	USER	& GR	ILLE SCHEDULE			
MARK	STYLE	DAMPER	REMARKS			
Α	SR	OBD				
В	RAG					
С	TDC	OBD	KRUEGER SH SERIES			
MARI SIZE CFM		ADE DIFF ER-EXHAUST REG EG- EXHAUST GR FRAG-FLOOR RAG				







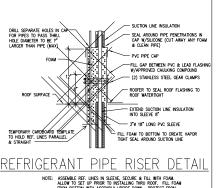
INSTALL NEW DRAINS IN EXIST ROOF

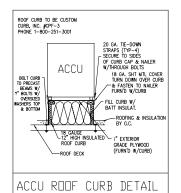
RNAME RNO

PLUMBING PLAN

CONN TO EXIST 1"CW IN EXIST BOILER ROOM IN BASE BID —W/BALL VALVE & DIELECTRIC UNION

RISE UP TO ROOF





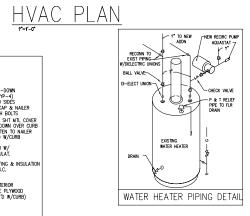
ROOF TYPE CONCENTRIC ADAPTOR FURNISHED W/FURNACE (INSTALL PER MANF. INSTRUCTIONS)

FILL GAP BETWEEN PVC & LEAD FLASHING W/APPROVED CALLKING COMPOLING

ROOFER TO SEAL ROOF FLASHING TO

FURNACE CONCENTRIC VENT RISER DETAIL

ALTERNATE M-1
FURBISH & INSTALL A NEW 2" INSULATED COPPER WATER SERVICE THROUGH
FURBISH & INSTALL A NEW 2" INSULATED COPPER WATER SERVICE THROUGH
HE DASTS HOPE TUNNEL FROM THE BOULER ROOM TO THE EAST TUNNEL
WALL WHERE THE EASTS WATER SERVICE FROM THE METER. PROVIDE FULL SIZE
CONNECTIONS WITH BALL VALVE & DI-ELECTRIC UNION TO ALL CURRENT
RINDUISTS AND WASTE HASTER.



EXTEND 1" TRAPPED CD & OD TO FLR DR

?"=1"-0"

© 15x15 475-74

© 15x15 475-4

ROOM SCHOOL Щ 4 S WITCHITA TORNADO

WICHITA,

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INSTALL DUCT TIGHT TO STRUCTURE

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PLUMBING PLAN

SHEET No.: P-1 DATE: 7 MARCH 2000 REV. NO. REVISED:

