

SERVICE SIZE GUIDE

MINIMUM SERVICE SIZE (ampere rating)	DWELLING UNIT AREA (electrical) (Sqft)	DWELLING UNIT AREA (Sqft)
100	850	2,250
110	1,100	2,850
125	1,450	3,700
150	2,000	5,150
175	2,550	6,650
200	3,150	8,100
225	3,700	9,600

*THE SECOND COLUMN INCLUDES A CONSERVATIVE ESTIMATE FOR ELECTRIC COOLING LOAD.
THIS TABLE WAS DEVELOPED USING THE OPTION METHOD AND USING THE FOLLOWING ASSUMPTIONS, THE ASSUMPTIONS MADE SHOULD PROVIDE AN APPROXIMATE ANSWER THAT WILL EQUAL OR EXCEED CODE MORE THAN 90% OF THE CASES.
1. COOLING LOAD = 6 AMPS / 800 SQ. FT.
2. ELECTRICAL HEATING LOAD = 22 AMPS / 800 SQ. FT.
3. DRYER = 1000 VA
4. LAUNDRY CIRCUIT = 1500 VA
5. TWO SMALL APPLIANCE CIRCUITS AT 1600 VA EACH
6. RANGE LOAD = 8000 VA
7. WATER HEATER = 4800 VA
8. 3 VA / SQ. FT. FOR GENERAL LIGHTING AND RECEPTACLES
9. A 40% DEMAND FACTOR IS APPLIED TO ALL LOAD EXCEPT COOLING AND HEATING OVER FIRST 10,000 VA
10. DWELLINGS THAT ARE NEITHER ELECTRICALLY COOLED OR HEATED SHALL HAVE THE SERVICE SIZED TO INCLUDE THE POTENTIAL COOLING LOAD IN THE FUTURE.

ELECTRICAL NOTES

- MINIMUM WIRE SIZE SHALL BE #12 AWG COPPER. INSULATION SHALL BE THW, XHHW, THHN OR XHHW.
- SERVICE ENTRANCE CONDUCTOR SHALL BE 2-2-4 SER. AL. GROUNDING CONDUCTOR TO #6 SOLID COPPER (100A SERVICED) OR #4 SOLID COPPER (200A SERVICED).
- GROUNDING METHOD TO BE TWO 3/8" X 9'-0" LONG GALVANIZED STEEL GROUND RODS, 6'-0" APART.
- UNLESS NOTED OTHERWISE, ALL BRANCH CIRCUIT WIRING SHALL BE TYPE NM CABLE ABOVE CEILINGS, BETWEEN FLOORS, OR IN STUD WALL CAVITIES.
- SERVICE PANEL SHALL INCLUDE THE FOLLOWING NUMBER OF CIRCUITS:
 - ONE 15 AMPERE BRANCH CIRCUIT OF EACH 800 SQUARE FEET FOR LIGHTING AND GENERAL PURPOSE RECEPTACLES.
 - TWO 20 AMPERE CIRCUITS FOR SMALL APPLIANCES.
 - ONE 20 AMPERE BRANCH CIRCUIT FOR THE LAUNDRY.
 - ONE BRANCH CIRCUIT FOR THE RANGE OR COOKTOP.
 - ONE BRANCH CIRCUIT FOR AIR CONDITIONING AND HEATING.
- PROVIDE THE MAXIMUM AVAILABLE FAULT CURRENT.
- A GENERAL PURPOSE RECEPTACLE IS REQUIRED TO BE INSTALLED NO MORE THAN 12' O.C. ON ALL WALLS. ONE RECEPTACLE IS REQUIRED TO BE INSTALLED FOR ALL WALLS 2' OR GREATER IN LENGTH.
- KITCHEN COUNTERTOP RECEPTACLES ARE SPACED NO MORE THAN 4' O.C. ON EVERY COUNTER 1' OR LONGER, INCLUDING RANDED BARS. ONE RECEPTACLE ON EVERY ISLAND.
- WIRING BELOW SLAB SHALL BE INSTALLED IN ROISED GALVANIZED STEEL CONDUIT.
- PVC CONDUIT INSTALLED BELOW GRADE WITH NO HARD COVER SHALL BE PROTECTED WITH 2" MIN. CONCRETE COVERAGE ON ALL SIDES.
- ALL WIRING IN ATTIC SHALL BE LAID OUT NEATLY, SECURELY FASTENED TO STRUCTURE, AND SHALL NOT INTERFERE WITH FLOORING OR ATTIC OR ACCESS REQUIREMENTS FOR EQUIPMENT.
- CONNECTIONS TO PURCHASER, CONDENSING UNITS, OTHER MOTORS, OR VIBRATING EQUIPMENT SHALL BE MADE WITH FLEXIBLE CONDUIT (LIQUID TIGHT IF EXPOSED TO WEATHER) AND STRANDED WIRE, THHN/THWN.
- ALL CONDUCTORS SHALL BE COPPER, NO ALUMINUM OR COPPER CLAD ALUMINUM SHALL BE USED.
- UNLESS NOTED, ALL LIGHT SWITCHES SHALL BE 4" A.F.F.
- RECEPTACLES SHALL BE INSTALLED THE FOLLOWING HEIGHTS:
 - REGULAR WALL OUTLET - 18"
 - KITCHEN WALL - 48"
 - BATH WALL - 48"
 - CLOSET HEATING UNITS AND REFRIGERATOR - 38"
- ELECTRICAL CONTRACTOR SHALL MARK ALL CIRCUITS FOR ELECTRICAL WIRING SYSTEM AT EACH MAIN DISCONNECT.
- ALL 3-WAY SWITCHES MUST HAVE 1203 WITH GROUND.
- GROUND FAULT CIRCUIT INTERRUPTER SHALL BE INSTALLED IN ALL BATHROOMS, GARAGES, AND OUTDOOR OUTLETS.
- GROUND FAULT RECEPTORS IN KITCHEN SHALL BE CIRCUITED SEPARATELY FROM ALL OTHER GFCI OUTLETS.
- OUTDOOR OUTLETS SHALL BE INSTALLED WITH WATERPROOF COVERS.
- SMOKE DETECTORS SHALL BE WIRED TOGETHER, TO THE A.C. POWER SYSTEM, AND BATTERY BACKUP.
- SMOKE DETECTORS ARE REQUIRED IN EACH BEDROOM, AND OUTSIDE THE IMMEDIATE VICINITY OF THE BEDROOMS.
- APFC IN ALL BEDROOMS:
 - 1-10 OUTLETS #14 WIRE, 15 AMP BREAKER, 11-13 OUTLETS #12 WIRE, 20 AMP BREAKER, or 1-20 OUTLETS #14 WIRE.
 - 2-15 AMP BREAKERS, OUTLETS, LIGHTS, SWITCHES, FANS, AND SMOKE DETECTORS ALL ON A.F.C.I.
 - 2- GARAGE RECEPTACLES MUST BE ON THEIR OWN DEDICATED CIRCUITS.
 - 3- A 3'X3' CLEAR AREA IN FRONT OF THE ELECTRICAL METERS BASE IS REQUIRED.
 - 4- CARBON MONOXIDE DETECTORS REQUIRED IN HALLWAYS OUTSIDE OF BEDROOMS.

SYMBOLS

SYMBOL	DESCRIPTION
○	SUSPENDED CEILING FIXTURE
⊖	RECESSED CEILING FIXTURE
⊞	EXHAUST FAN W/ LIGHT
⊕	RECESSED EYEBALL FIXTURE
⊞	110 VOLT DUPLEX OUTLET
⊞	FLOOD LIGHT FIXTURE
⊞	WATERPROOF - GFI OUTLET
⊞	GFI OUTLET
⊞	220 VOLT OUTLET
—	WATER LINE
Δ	SMOKE DETECTOR
⊞	GAS LINE
⊞	SINGLE POLE SWITCH
⊞	THREE WAY SWITCH
⊞	TV
—	UNDERCOUNTER LIGHTING

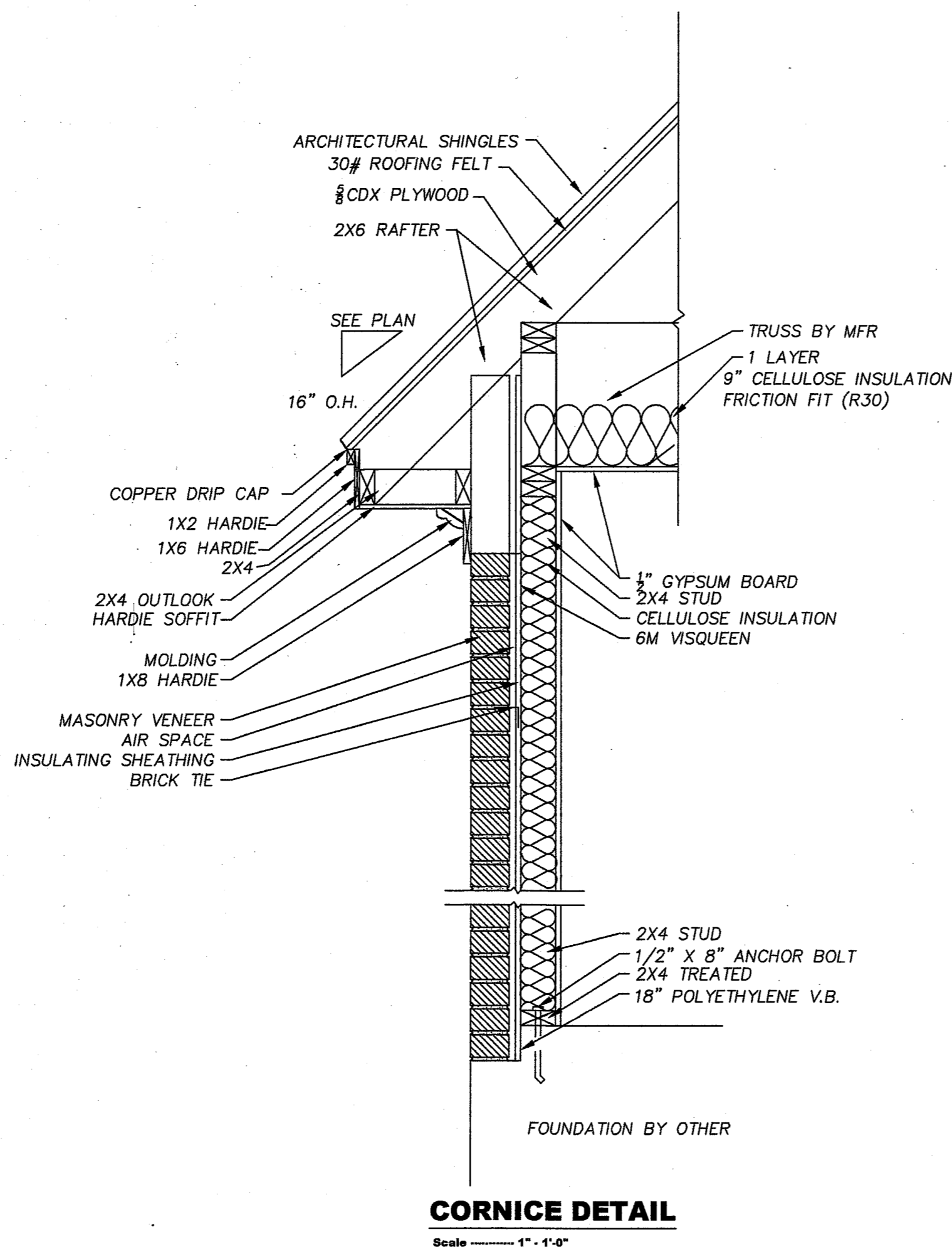
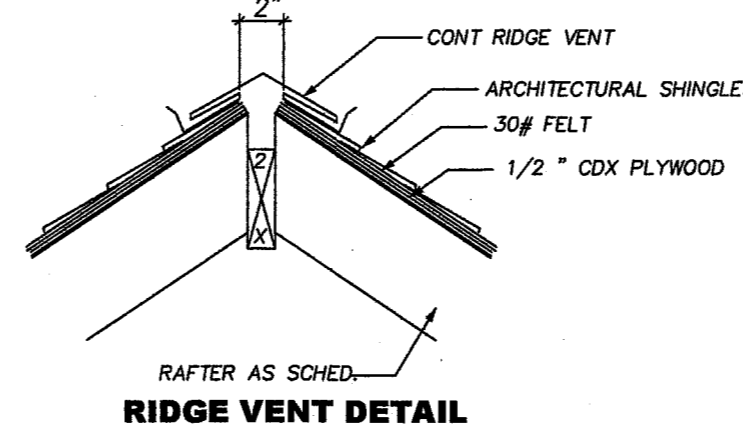
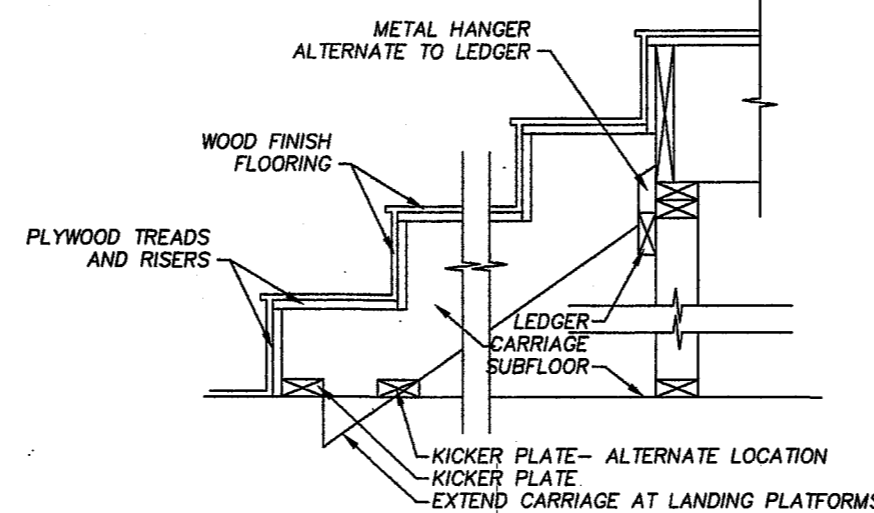
SPAN TABLE

SIZE AND SPACING	FLOOR JOIST BEDROOM	FLOOR JOIST TYP.	CEILING JOIST W/O ATTIC	CEILING JOIST W/ ATTIC	RAFTERS W/O CEILING	RAFTERS W/ CEILING
2"x8" AT 12" O.C.	11'-3"	10'-3"	16'-8"	13'-11"	15'-7"	14'-5"
2"x8" AT 16" O.C.	10'-3"	9'-4"	16'-11"	12'-0"	13'-6"	13'-5"
2"x8" AT 24" O.C.	8'-6"	7'-7"	13'-11"	9'-10"	11'-0"	11'-0"
2"x8" AT 12" O.C.	14'-11"	13'-6"	14'-7"	17'-7"	19'-8"	19'-6"
2"x8" AT 16" O.C.	13'-3"	11'-10"	21'-7"	15'-3"	17'-1"	17'-1"
2"x8" AT 24" O.C.	10'-10"	9'-8"	17'-7"	12'-8"	13'-11"	13'-11"
2"x10" AT 12" O.C.	18'-1"	16'-2"	26'-4"	20'-11"	23'-5"	23'-5"
2"x10" AT 16" O.C.	15'-8"	14'-0"	25'-7"	18'-1"	20'-3"	20'-3"
2"x10" AT 24" O.C.	12'-10"	11'-5"	20'-11"	14'-9"	16'-8"	16'-8"
2"x12" AT 12" O.C.	21'-4"	19'-1"				
2"x12" AT 16" O.C.	18'-6"	16'-8"			23'-10"	23'-10"
2"x12" AT 24" O.C.	15'-1"	13'-6"			19'-6"	19'-6"

MAXIMUM SPANS: #2 SOUTHERN YELLOW PINE JOISTS AND RAFTERS
FROM IRC-2015 CODE BOOK

FRAMING NOTES

ALL STUDS SHALL BE 2X4 SPRUCE @ 16" O.C. ALL CORNER STUDS SHALL BE TRIPLE BLOCKED.
ALL DOOR AND WINDOW JAMBS SHALL BE DOUBLED STUDDED.
ALL SOLE PLATES IN CONTACT WITH SLAB SHALL BE TREATED NO. 2 SOUTHERN YELLOW PINE AND SHALL BE BOLTED TO SLAB WITH 1/2" X 9" LONG ANCHOR BOLTS.
ALL ROOF RAFTERS, FLOOR JOISTS SHALL BE NO. 2 K.D. SOUTHERN YELLOW PINE, SIZED AND SPACED PER THE SPAN TABLE ABOVE UNLESS NOTED OTHERWISE ON FLOOR PLAN OR SECTION.
PROVIDE BRACING AT 8'-0" MAX FOR CEILING AND FLOOR JOISTS.
ROOF SHEATHING TO BE 7/16" WAFFER BOARD COVERED WITH 30# BUILDING FELT.
PROVIDE METAL HANGERS FOR JOIST FRAMING INTO FLUSH BEAMS.
PROVIDE DOUBLE OR TRIPLE STUDS UNDER ALL BEAMS TO ALLOW A MINIMUM BEARING OF 3'-10".
PROVIDE ALL BLOCKING AS REQUIRED TO GUARANTEE SOLID NAILING OF GYP. BOARD, TRIM, FIXTURES, AND APPLIANCES.
NAILING SCHEDULE: 12D - STUDS, JOISTS, RAFTERS, AND SUB FLOOR, 8D SHEATHING
THE DOOR BETWEEN A GARAGE AND THE HOUSE MUST HAVE AN AUTOMATIC CLOSER. USE A COMMERCIAL TYPE CLOSER.
R-19 IN WALLS
R-19 IN CEILING
R-19 BETWEEN GARAGE W/ BONUS
WINDOWS AND DOORS MUST HAVE A U-FACTOR AND A SHGC OF .35 OR LESS
HVAC DUCTWORK MUST HAVE AN INSULATED WRAP OF R-8 OR BETTER.



- FOUNDATION DETAILS APPLY TO SITES WITH UPPER SOILS (TOP 8") HAVING A PLASTICITY INDEX UP TO 24. A SOIL TEST SHALL BE TAKEN IN ORDER TO DETERMINE THE APPLICABILITY OF THESE DETAILS. AN ENGINEER SHALL BE CONSULTED IF SOIL IS NOT IN COMPLIANCE WITH THESE SPECIFICATIONS.
- ALL FILL MATERIAL SHALL BE SELECT, NON-EXPANSIVE MATERIALS, PLACED AND COMPACTED IN 9" MAXIMUM LOOSE LIFTS. COMPACT EACH LIFT TO 95% STANDARD PROCTOR DENSITY.
- ALL FILL MATERIAL SHALL CONSIST OF SOIL HAVING A MOISTURE CONTENT WITHIN 4% OF OPTIMUM AND A PLASTICITY INDEX OF NOT MORE THAN 17 OR LESS THAN 10.
- PROVIDE 4" MIN THICKNESS OF COMPACTED GRAVEL UNDER SLAB.
- PROVIDE POSITIVE DRAINAGE AWAY FROM SLAB WITH A MINIMUM OF 9" OF SLOPE AT 10' AWAY FROM FOUNDATION.
- INSTALL 6 MILL VISQUEEN OVER FILL. SEAL AROUND ALL PIPE AND LAP JOINTS A MINIMUM OF 12"
- AFTER PLACING GRAVEL FILL AND PRIOR TO VISQUEEN, APPLY .5% DIELDRIN IN OIL SOLUTION OR WATER EMULSION AT THE RATE OF 1 GALLON PER 7 SQ. FT. SUCH APPLICATION SHALL BE MADE BY A LICENSED EXTERMINATOR AND HAVE A MIN 5 YEAR WARRANTY.
- ALL CONCRETE SHALL CONFORM TO CURRENT ACI SPECIFICATIONS AND SHALL BE REGULAR SAND AND GRAVEL WITH A PSI OF 3500 IN 28 DAYS.
- PROVIDE NECESSARY ACCESSORIES TO HOLD REINFORCING IN PLACE.
- #5 BARS AND SMALLER SHALL BE DEFORMED GRADE 40, #6 BARS SHALL BE GRADE 60. LAP #4 BARS 20" MIN AT SPLICE. PROVIDE 4 #4 BARS 20" X 20" AT CORNERS.

