

## GENERAL DESIGN & DRAFTING NOTES

GENERAL NOTES ARE NOT INTENDED TO APPLY TO EVERY SET OF PLANS, BUT ARE INTENDED TO GIVE OWNER & CONTRACTORS SOME BASIC GENERAL GUIDELINES.  
ALL NOTES FOUND ON ATTACHED PLANS OF LOG STRUCTURE TAKE PRECEDENCE OVER GENERAL NOTES. THIS BUILDING IS DESIGNED IN ACCORDANCE WITH THE BRITISH COLUMBIA BUILDING CODE 1998 & MAY BE MODIFIED TO SUIT FEDERAL & LOCAL CODE REQUIREMENTS, GEOGRAPHICAL ENVIRONMENTAL DIFFERENCES & MATERIAL AVAILABILITY. ALL COSTS INCURRED TO APPLY THOSE CHANGES, AS WELL AS ENGINEERING, PERMIT, INSPECTION, MATERIAL & LABOUR COSTS ARE THE SOLE RESPONSIBILITY OF THE OWNER.  
ALL DIMENSIONS ARE AT CONSTRUCTION TIME DIMENSIONS. IT IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO CHECK & VERIFY ALL DIMENSIONS & SPECIFICATIONS ON THIS SET OF PLANS BEFORE STARTING CONSTRUCTION. THIS SET OF WORKING DRAWINGS DOES NOT INCLUDE A BUILDING MATERIAL LIST. THE OWNER IS TO PROVIDE & COORDINATE PRODUCT SELECTION, ASSEMBLY & INSTALLATION. ALL LOGS DIAMETER NOTED SIZE TO BE MEASURED AT MID SPAN.

### DESIGN DATA

UNLESS OTHERWISE NOTIFIED BY OWNER & NOTED IN ATTACHED DRAWINGS, MIN. DESIGN LOADS ARE:  
-SOILS TESTS TO CONFIRMED A SOIL BEARING PRESSURE OF 1500 POUNDS PER SQUARE FOOT.  
FOUNDATION & FOOTING DESIGN MUST BE CHECKED BY ENGINEER OR LOCAL BUILDING DEPARTMENT.  
-THE DEAD LOAD IS THE ACCUMULATIVE WEIGHT OF ALL STRUCTURAL MEMBERS, THE FIXTURES AND THE PERMANENTLY ATTACHED EQUIPMENT OF THE LOG BUILDING AND ITS FOUNDATION.  
-THE LIVE LOAD IS THE WEIGHT THAT IS SUPERIMPOSED ON THE STRUCTURAL COMPONENTS BY THE USE AND OCCUPANCY OF THE BUILDING, SUCH AS FURNITURE, APPLIANCES AND PEOPLE.  
FIRST FLOOR LOADS ARE : 40 PSF LIVE LOAD + 10 PSF DEAD LOAD = 50 PSF TOTAL LOAD  
SECOND FLOOR LOADS ARE : 40 PSF LIVE LOAD + 10 PSF DEAD LOAD = 50 PSF TOTAL LOAD  
ROOF LOADS ARE: 56 PSF SNOW LOAD + 15 PSF DEAD LOAD = 61 PSF TOTAL LOAD  
DECK LOADS ARE: 10 PSF DEAD LOAD+40 PSF LIVE LOAD+56 PSF SNOW LOAD=106 PSF TOTAL LOAD  
DESIGN IS TO BE MODIFIED ACCORDINGLY IF LOCAL CONDITIONS SUCH AS SEISMIC ACTIVITY, WIND SPEED & OR HEAVY SNOW ACCUMULATION EXCEED THE PRECEDING DESIGN PARAMETERS.  
- MAXIMUM ALLOWED DEFLECTION FOR FIRST FLOOR SYSTEM & GYPROC CLADDED CEILINGS IS 1/360 OF THE SPAN DIMENSION. SECOND FLOOR & ATTIC, PURLINS, LINTELS, RAFTERS, NO GYPROC CEILINGS. MUST NOT DEFLECT MORE THAN 1/240 OF THE SPAN DIMENSION.

## GENERAL CONSTRUCTION NOTES

### SITE PREPARATION

OWNER / CONTRACTOR IS TO CONDUCT SOIL TESTS & DIG TEST HOLES TO DETERMINE SOIL TYPE & DRAINAGE PROPERTIES OF SITE. A SURFACE DRAINAGE PATTERN SHOULD BE ESTABLISHED WHICH WILL DRAIN THE ENTIRE AREA AND DIRECT WATER AWAY FROM THE HOUSE. DRIVEWAYS & WALKWAYS SHOULD BE SET LOW ENOUGH TO AVOID INTERFERENCE WITH THE DRAINAGE PATTERN.  
THE FINISHED GRADE WILL BE SLOPED AWAY FROM THE FOUNDATION WALL OF HOUSE. WHERE THE DRAINAGE SLOPE AROUND THE HOUSE MEETS A REVERSE SLOPE, A GENTLY SLOPING DITCH IS USED TO CARRY SURFACE WATER AWAY.  
IF A WELL IS USED TO SUPPLY WATER FOR THE HOUSE, ALL SURFACE DRAINAGE MUST BE DIRECTED AWAY FROM WELL TO AVOID CONTAMINATION OF WATER SUPPLY.

### CONCRETE FOUNDATION

REMOVE ALL LOOSE & ORGANIC MATERIALS & EXCAVATE FOR FOOTINGS & PADS AS PER PLANS. THE DISTANCE OF THE FOOTING BASE TO THE FINISHED GRADE MUST BE NO LESS THAN THE DEPTH OF LOCAL FROST PENETRATION.  
FOOTINGS MUST BE ACCURATELY POSITIONED AND ROUGHLY LEVEL. FOOTING FORMS ARE TYPICALLY MADE OF 2x STOCK. CONCRETE MUST BE PLACED CONTINUOUSLY WITHOUT INTERRUPTION.  
POST & COLUMN FOOTINGS ARE TO BE PLACED SO THAT SUPPORTED LOAD IS APPLIED AT CENTER. FOOTINGS VARY IN SIZE & DEPTH DEPENDING ON THE ALLOWABLE SOIL PRESSURE AND THE LOAD.  
- STEPPED FOOTINGS MAY BE REQUIRED ON STEEPLY SLOPING SITES, OR WHERE AN UNSTABLE SOIL IS ENCOUNTERED IN PART OF THE EXCAVATION.  
THE VERTICAL PART OF THE STEP SHOULD BE PLACED AT THE SAME TIME AS THE FOOTING.  
THE BOTTOM OF THE FOOTING IS ALWAYS PLACED ON UNDISTURBED SOIL OR COMPACTED GRANULAR FILL WITH EACH RUN LEVEL. ON STEEP SLOPES, MORE THAN ONE STEP MAY BE REQUIRED, EXCEPT IN ROCK. THE VERTICAL DISTANCE BETWEEN STEPS SHOULD NOT EXCEED 2' & THE HORIZONTAL DISTANCE BETWEEN STEPS SHOULD BE NOT LESS THAN 2'. FOR VERY STEEP SLOPES, WHERE THESE LIMITATIONS CANNOT BE MAINTAINED, SPECIAL FOOTINGS MAY BE REQUIRED.

#### - PLACING CONCRETE:

-WHENEVER POSSIBLE, CONCRETE SHOULD BE PLACED INTO FORMS CONTINUOUSLY IN HORIZONTAL LIFTS NOT EXCEEDING 12" TO 18" IN DEPTH. CONCRETE SHOULD NOT BE ALLOWED TO FALL INTO FORMS FROM A HEIGHT OF MORE THAN 5', AS THIS CAUSES THE CONCRETE TO SEGREGATE.  
FOR HIGHER DROPS, THE CONCRETE SHOULD BE DEPOSITED THROUGH A SUITABLE VERTICAL PIPE. THE CONCRETE SHOULD NOT BE DEPOSITED IN A PILE BUT SHOULD BE SPREAD OUT AND LEVELLED BY RAKING OR SHOWELLING. VIBRATORS MAY BE USED TO CONSOLIDATE THE CONCRETE BUT SHOULD NOT BE USED TO ASSIST PLACEMENT. CONCRETE CAN ALSO BE PLACED BY PUMPING.  
- IF IT IS NECESSARY TO INTERRUPT THE PLACING OPERATIONS, THE SURFACE OF THE CONCRETE PLACED IN THE FORMS SHOULD BE LEVELLED OFF & THE CONCRETE ALLOWED TO SET PARTIALLY. THE SURFACE SHOULD THEN BE ROUGHENED TO PROVIDE A GOOD BONDING SURFACE FOR NEXT LIFT. WHEN WORK RESUMES, THE SURFACE SHOULD BE CLEANED AND SLIGHTLY DAMPENED PRIOR TO PLACING THE CONCRETE. GROUT OF 1 PART CEMENT TO 2 PARTS SAND SHOULD BE SPREAD ABOUT 1/2" THICK OVER THE ROUGHENED SURFACE TO PROVIDE A GOOD JOINT BETWEEN THE TWO LIFT. THE NEXT LIFT SHOULD BE PLACED IMMEDIATELY AFTER THE PLACEMENT OF THE GROUT.  
WHEN THE AIR TEMPERATURE IS AT OR BELOW 40°F OR WHEN THERE IS A POSSIBILITY OF IT FALLING TO THAT LEVEL WITHIN 24 HOURS, CONCRETE OPERATIONS SHOULD BE SUSPENDED. IF CONCRETE IS CARRIED ON, THE CONCRETE MUST BE KEPT AT A TEMPERATURE OF NOT LESS THAN 50°F OR MORE THAN 77°F WHILE BEING MIXED AND PLACED, AND IT MUST BE MAINTAINED AT A TEMPERATURE OF NOT LESS THAN 50°F FOR A MINIMUM OF 72 HOURS WHILE CURING. THE WATER TO BE MIXED INTO THE CONCRETE MAY HAVE TO BE HEATED. CONCRETE SHOULD NOT BE PLACED AGAINST FROZEN SOIL, AND ANY ICE OR SNOW SHOULD BE REMOVED FROM THE FORMWORK.

#### - CURING CONCRETE:

CURING INVOLVES KEEPING FRESHLY SET CONCRETE MOIST OR PREVENTING IT FROM DRYING OUT AND SHRINKING FOR SEVERAL DAYS AFTER PLACING. THE CRACKING OF CONCRETE WALLS AND FLOORS CAN OFTEN RESULT FROM IMPROPER ATTENTION TO CURING, RADICALLY LOWERING THE CONCRETE POTENTIAL STRENGTH, WATER TIGHTNESS AND DURABILITY.

### CONTROL JOINTS:

IF UNCONTROLLED CRACKING OF CONCRETE SLABS AND WALLS IS TO BE AVOIDED, STEEL REINFORCING RODS OR PROPERLY LOCATED AND FORMED VERTICAL CONTROL JOINTS SHOULD BE USED. WALL JOINTS ARE FORMED BY NAILING WOOD STRIP 3/4" THICK, BEVELLED TO 1/2" IN WIDTH, TO THE INSIDE OF BOTH INTERIOR & EXTERIOR WALL FORMS. THE PURPOSE OF THESE GROOVES IS TO PROVIDE A CONTROLLED PLANE OF WEAKNESS IN THE WALL, THUS PREDETERMINING THE LOCATION OF SHRINKAGE CRACKS.

### DAMPProofING:

CONCRETE WALLS BELOW GRADE SHOULD BE DAMPPROOFED WITH A HEAVY COAT OF BITU-MINUS MATERIAL APPLIED ON THE EXTERIOR SURFACE FROM THE FOOTINGS TO THE FINISHED GRADE LINE, TO MAKE THE WALL WATERTIGHT AGAINST ORDINARY SEEPAGE THAT MAY OCCUR AFTER A RAINSTORM.

BEAM POCKETS FOR UNTREATED WOOD BEAMS SHOULD BE BIG ENOUGH TO ALLOW 1/2" AIR SPACE AT THE SIDES & ENDS OF THE BEAM TO PREVENT DECAY.

### CONCRETE SLABS:

BASEMENT FLOOR SLAB SHOULD BE AT LEAST 3" THICK AND SLOPED TOWARDS FLOOR DRAIN.  
- COMPLETE THE INSTALLATION OF SEWER & WATER LINES... BEFORE THE SLAB IS PLACED. COMPACT BACKFILL IN TRENCHES.  
- PUT 5" MIN. OF CRUSHED ROCK OR COARSE GRAVEL UNDER THE FLOOR SLAB TO RESTRICT THE PASSAGE OF MOISTURE BY CAPILLARY ACTION FROM THE GROUND UP TO THE SLAB SUGGEST NOW ADDING 2" RIGID INSULATION, R12 MINIMUM AND 2" OF SAND  
APPLY A LAYER OF 6 MIL POLYETHYLENE TO DAMPPROOF THE FLOOR. VAPOUR BARRIER TO OVERLAP 4" MINIMUM AT THE JOINTS.  
- BASEMENT FLOOR SLAB SHOULD NOT BEAR DIRECTLY ON WALL OR COLUMN FOOTINGS BUT SHOULD BE ISOLATED FROM THEM BY A 1" SAND CUSHION OR OTHER MEANS.  
- A PREMOULDED JOINT FILTER OR DOUBLE LAYER OF SHEATHING PAPER BETWEEN FLOOR SLAB AND WALL OR COLUMN SHOULD BE PROVIDED TO ALLOW FOR SLIGHT MOVEMENT OF THE FLOOR SLAB DUE TO SHRINKAGE OF THE SLAB DURING THE DRYING AND SETTling OF THE SUBBASE.  
- AFTER THE CONCRETE HAS BEEN PLACED AND CONSOLIDATED, IT SHOULD BE STRUCK OFF WITH A STRAIGHT EDGE TO THE PROPER ELEVATION.  
- AFTER THE WATER SHEEN HAS DISAPPEARED AND THE CONCRETE HAS STIFFENED SLIGHTLY EDGING, JOINTING AND FLOATING OPERATIONS CAN BEGIN.  
- CONTROL JOINTING AND GROOVING MAY BE NECESSARY TO AVOID RANDOM CRACKING IN THE SLAB. CONTROL JOINTS SHOULD BE PLACED ON LINE WITH COLUMNS AND WHEN FLOOR SLAB WIDTH CHANGES. THE DEPTH OF JOINTS SHOULD BE 1/4 OF THE SLAB THICKNESS.

### FOUNDATION DRAINAGE:

DRAIN TILES SHOULD BE LAID ON SOLID UNDISTURBED SOIL AROUND THE PERIMETER OF THE WALL FOOTINGS WITH TOP OF TILE TO BE BELOW THE LEVEL OF THE BASEMENT FLOOR OR CRAWL SPACE, WITH A SLIGHT SLOPE TO A STORM SEWER OR OTHER ADEQUATE OUTLET. THE TILE IS THEN COVERED WITH 6" OF GRAVEL OR CRUSHED ROCK.

### CONCRETE REINFORCEMENT:

CONCRETE DENSITY IS INCREASED BY ADDING MORE CEMENT TO THE MIX. FOR LOG HOMES THE CONCRETE COMPRESSIVE STRENGTH SHOULD BE A MINIMUM OF 3000 PSI AFTER MINIMUM 28 DAYS FIELD CURING PERIOD.  
CONCRETE IS NOT AN ELASTIC MATERIAL AND IS FAIRLY WEAK IN SHEAR STRENGTH. BY PLACING METAL REINFORCING BARS (REBARS) INTO THE FORMS BEFORE THE CONCRETE IS POURED, THE CONCRETE SHEAR STRENGTH CAN BE INCREASED MANY TIMES.  
REBAR COMES IN SIZES DESIGNATED BY NUMBERS 2 TO 8. THAT NUMBER x 1/8" EQUALS THE REBAR DIAMETER. #5 REBAR IS 5/8" IN DIAMETER. #4 OR #5 REBAR IS USUALLY USED IN RESIDENTIAL CONSTRUCTION.  
CONCRETE REINFORCEMENT SHALL BE DESIGNED, FABRICATED, & PLACED IN ACCORDANCE WITH LOCAL BUILDING CODE REQUIREMENTS & OR ENGINEER SPECIFICATIONS.

### BACKFILLING:

BACKFILLING OF FOUNDATION WALLS SHOULD NOT BE CARRIED OUT UNTIL:  
- FLOOR JOIST & SUBFLOOR ARE IN PLACED FULLY NAILED TO BRACE CONCRETE WALLS.  
- CONCRETE 28 DAYS CURING PERIOD HAS PASSED.  
- 4" PERIPHERAL DRAINTILES ARE IN PLACE, COVERED WITH 6" GRAVEL.  
- ALL DAMPPROOFING MEMBRANE AND EXTERNALLY MOUNTED INSULATION INSTALLED  
SUDDEN PRESSURES AGAINST FOUNDATION WALLS BROUGHT ABOUT BY LOADS OF BACKFILL MATERIAL MAY CAUSE THE WALLS TO MOVE, RESULTING IN DAMAGE SUCH AS CRACKING  
THIS GREATLY LOWERING OVERALL STRENGTH OF FOUNDATION  
THEREFORE, IT IS CRUCIAL THAT BACKFILL MATERIAL BE DEPOSITED GRADUALLY AND UNIFORMLY AROUND THE PERIMETER IN SMALL LIFTS, 6" HIGH MAXIMUM. EACH LIFT BEING COMPACTED TO THE APPROPRIATE DENSITY BEFORE THE NEXT LIFT IS PLACED. CARE SHOULD BE TAKEN TO ENSURE THAT THE DAMPPROOFING MEMBRANE & INSULATION IS NOT DAMAGED. BACKFILL SHOULD CONSIST OF FREE DRAINING GRANULAR MATERIAL.  
BOTTOM OF FIRST ROUND OF LOGS SHOULD BE AT LEAST 18" ABOVE FINISHED GRADE & WP TO 48" OR MORE WHERE HEAVY SNOW IS THE NORM. IF GUTTERS TO CHANNEL ROOF WATER AWAY FROM LOG HOME ARE NOT PRACTICAL BECAUSE OF ICE DAM BUILDUP @ ROOF, THEN DIG A SMALL TRENCH RIGHER UNDER ROOF DRIP LINE & FILL WITH SMALL ROUND GRAVEL TO MINIMIZE SPLASHING OF ROOF WATER ON TO BOTTOM LOGS. USE DRIP IRRIGATION INSTEAD OF SPRINKLERS TO WATER PLANTS CLOSE TO LOGHOME PERIMETER.

### BUILDING MATERIAL DELIVERY & STORAGE:

PRIOR TO LOG PACKAGE DELIVERY AND SET UP, FOUNDATION AND FIRST FLOOR SYSTEM MUST BE COMPLETED AND READY TO BEAR LOG STRUCTURE. ALL CONCRETE MUST BE CURED AND FIRST FLOOR SYSTEM MUST BE FULLY NAILED AND ANCHOR BOLTED TO CONCRETE WALLS.  
ACCESS IN & OUT TO BUILDING SITE BY A 48' TRUCK-TRAILER WITH CRANE MUST BE PROVIDED BY OWNER. ANY ADDITIONAL COSTS TO TRANSPORT MATERIAL TO THE BUILDING SITE NOT DIRECTLY ACCESSIBLE BY TRUCK-TRAILER IS THE FULL RESPONSIBILITY OF OWNER-BUYER.  
AS FAR AS POSSIBLE MATERIAL SHOULD BE DELIVERED TO THE SITE JUST BEFORE IT IS TO BE USED. AS SOON AS LOG STRUCTURE IS ERECTED AND THRU BOLTED, ROOF SYSTEM SHOULD BE COMPLETED.

THE PROTECTION OF BUILDING MATERIALS ON THE SITE & STORAGE BEFORE USE ARE VERY IMPORTANT.  
- IN THE NORMAL STAGING OF CONSTRUCTION, THE FRAMING LUMBER AND SHEATHING MATERIALS ARE DELIVERED TO THE SITE AFTER THE FOUNDATION IS COMPLETE. THE LOG PACKAGE IS TRUCKED TO THE SITE ON CONSECUTIVE DAYS SO LOGS MAY BE UNLOADED & PLACED BY CRANE. TRY TO ARRANGE LOG DELIVERY WHEN LOCAL WEATHER DOES NOT CALL FOR RAIN. TO PROTECT THE NEWLY ERECTED LOG STRUCTURE FROM RAIN AND SUN DAMAGE, INSTALL A ROOF ON THE HOUSE AS SOON AS POSSIBLE.  
FOR EXAMPLE, INSTALLING A STYROFOAM INSULATED PANEL ROOF IS A QUICK WAY TO GET ROOF COVER.  
- LOGS AND FRAMING MATERIALS IN PLACE BEFORE THE HOUSE IS ENCLOSED MAY BE SUBJECTED TO RAINSTORM, BUT THE WETTING IS MOSTLY ON THE EXPOSED SURFACES AND WILL DRY OUT QUICKLY IN DRY WEATHER WITHOUT CAUSING DAMAGE.  
- LUMBER STORED IN CLOSED PILES, MAY SOAK UP AND RETAIN WATER, AND DRYING OUT WILL BE VERY SLOW. THIS CONDITION SHOULD BE AVOIDED AS IT MAY LEAD TO STAIN AND DECAY. PILES OF LUMBER SHOULD BE PLACED ON SKIDS RAISED OFF THE GROUND AND COVERED WITH SHEETS OF WATERPROOF MATERIAL TO SHED WATER.  
- WINDOW AND DOOR FRAMES ARE USUALLY THE NEXT ITEMS TO BE INSTALLED AFTER THE ROOFING. IF THE FRAMES ARE DELIVERED BEFORE THEY CAN BE INSTALLED, THEY SHOULD BE SHELTERED UNTIL THEY ARE USED. GOOD FRAMES ARE COSTLY ITEMS, AND EXPOSURE TO THE WEATHER WILL NULLIFY THEIR GOOD CONSTRUCTION, ESPECIALLY IF THE FRAMES HAVE THE WINDOW SASH INSTALLED.  
- INSULATION, INTERIOR WALL AND CEILING FINISH, WOOD SIDING... CAN EASILY BE STORED INSIDE. HEAVY ITEMS LIKE GYPROC BOARDS SHOULD BE DISTRIBUTED OVER THE FLOOR AREA SO AS NOT TO OVERLOAD THE FLOOR JOISTS. HEAVY LOADS CONCENTRATED ON ONE SPOT MAY CAUSE PERMANENT DEFLECTION IN THE FLOOR SYSTEM.  
- HARDWOOD FLOORING, INTERIOR TRIM & MILLWORK SHOULD NOT BE STORED IN THE HOUSE UNTIL AFTER THE BASEMENT CONCRETE SLAB HAS BEEN COMPLETED AND ALLOWED TO DRY, AS THE AIR MOISTURE GIVEN OFF MAY CAUSE THE KILN-DRIED MATERIALS TO SWELL, RESULTING IN EXCESSIVE SHRINKAGE AFTER THE MATERIALS ARE INSTALLED.

### FRAMING (ROUGH CARPENTRY):

- PRIOR TO SILL PLATE INSTALLATION, CONTRACTOR MUST INSPECT CONCRETE WORK CONDITION AND COMPARE ALL SITE DIMENSIONS WITH FOUNDATION PLAN DIMENSIONS.  
IF FOUNDATION IS UNACCEPTABLE TO THE BUILDING TOLERANCES, CONTRACTOR IS TO STOP ALL WORK AND IMMEDIATELY INFORM THE OWNER.

### - SILL ANCHOR

THE SILL PLATE SHOULD BE LEVELLED CAREFULLY. IF THE TOP OF THE FOUNDATION IS LEVEL, THE SILL PLATE MAY BE LAID ON FOUNDATION WITH A CLOSED CELL FOAM GASKET OR OTHER AIR-IMPERMEABLE MATERIAL IN BETWEEN, AND OF SAME WIDTH AS SILL PLATE.  
IF THE TOP OF THE FOUNDATION IS UNEVEN OR NOT LEVEL, THE SILL PLATE MAY BE LAID IN A FULL BED OF MORTAR AND ANCHORED TO THE FOUNDATION WALL.  
SILL IS INSTALLED TAKING CARE TO SQUARE BUILDING IN THE PROCESS. TO VERIFY SQUARENESS OF SILL PLATE INSTALLATION, MEASURE BOTH DIAGONALS FROM CORNER TO CORNER OF PLATES  
BOTH DIAGONALS SHOULD BE EQUAL WITH A TOLERANCE OF +/- 1/4".  
SILL PLATES SHOULD BE PRESSURE TREATED 2x MATERIAL DF #2 OR BETTER  
SILL PLATES ARE ANCHORED TO CONCRETE WALL WITH 5/8" ANCHOR BOLTS EMBEDDED 8" MIN. IN CONCRETE & 2" MIN. ABOVE CONCRETE. ANCHOR BOLT SHOULD BE PLACED 4'-0" o.c. MAX. APART, WITH TWO BOLTS MIN. PER SILL PLATE AND LEDGER STRIP, 24" MAX. FROM EACH END.

### - BEAMS

BEAM IS THE MOST COMMONLY USED SHAPE FOR STEEL BEAM. ALL STRUCTURAL STEEL MUST BE PAINTED FOR RUST PROTECTION.  
WOOD BEAMS ARE OF THREE TYPES: SOLID, BUILT UP & LAMINATED.  
A BUILT UP BEAM IS USUALLY MADE OF THREE OR MORE 2x LUMBER SET ON EDGE AND SPIKED TOGETHER FROM EACH SIDE WITH 3 1/2" NAILS. THE FIRST TWO NAILS ARE DRIVEN NEAR THE END OF EACH PIECE OF LUMBER. ADDITIONAL NAILS ARE DRIVEN NOT MORE THAN 12" APART IN EACH ROW. BUTT JOINTS IN EACH MEMBER ARE LOCATED OVER A SUPPORTING POST OR WITHIN ABOUT 6" OF THE QUARTER POINTS IN THE SPAN.  
END OF BEAMS SHOULD BEAR 3 1/2" MINIMUM ON CONC WALL OR COLUMNS. IF WOOD BEAM IS UNTREATED IT SHOULD BE SEPARATED FROM CONCRETE BY IMPERMEABLE MEMBRANE.  
LAMINATED BEAMS ARE TO BE TO ENGINEER SPECIFICATIONS.

### - FLOOR JOISTS

AFTER SILL PLATES HAVE BEEN LEVELLED AND ANCHORED, THE JOISTS ARE INSTALLED, LOCATED AND SPACED ACCORDING TO THE DESIGN. ANY JOISTS HAVING A SLIGHT BOW EDGEWISE SHOULD BE PLACED WITH THE CROWN ON TOP. A CROWNED JOIST WILL TEND TO STRAIGHTEN OUT WHEN THE SUBFLOOR AND FLOOR LOADS ARE APPLIED.  
ALL JOISTS TO HAVE A MINIMUM OF 2" BEARING AT SUPPORT.  
FLUSH FRAMED JOISTS TO BE FASTENED TO BEAM WITH FULLY NAILED JOIST HANGERS.  
ALL FLOOR OPENINGS TO BE FRAMED WITH DOUBLE TRIMMER JOIST AND DOUBLE HEADER JOIST.  
INSTALL DOUBLE JOIST OR SOLID BLOCKINGS UNDER ALL FRAMED PARTITION WALLS.  
INSTALL BLOCKINGS BETWEEN JOISTS TO TRANSFER CONCENTRATED LOADS TO BEARING BELOW.  
JOIST MAY BE KEPT FROM TWISTING BY CROSS BRIDGING, BLOCKING, STRAPPING OR BY THE USE OF GLUE IN ADDITION TO NAILING WHEN FASTENING THE PLYWOOD SUBFLOOR TO THE JOISTS.

### - SUBFLOOR

UNLESS OTHERWISE NOTED IN ATTACHED PLANS, FIRST FLOOR SUBFLOOR SHOULD BE 3/4" T&G PLYWOOD AND SECOND FLOOR SUBFLOOR SHOULD BE 5/8" T&G PLYWOOD  
PLYWOOD PANEL SHOULD BE INSTALLED WITH THE SURFACE GRAIN AT RIGHT ANGLES TO THE FLOOR JOISTS AND WITH THE END JOINTS STAGGERED AND NAILED ALONG THE EDGES AT 6" ON CENTRE AND 12" AT INTERMEDIATE SUPPORTS. FLOOR STIFFNESS CAN BE GREATLY INCREASED AND FLOOR SQUEAKS MINIMIZED, BY APPLYING ELASTOMERIC GLUE BETWEEN THE FLOOR JOISTS AND THE PLYWOOD SUBFLOOR. THUS, THE PLYWOOD AND JOISTS ACT TOGETHER AS A SERIES OF STIFF T-BEAMS THAT HELP PREVENT DIFFERENTIAL DEFLECTION BETWEEN JOISTS. GLUE APPLIED IN THE PLYWOOD TONGUE & GROOVE JOINTS WILL FURTHER STIFFEN THE FLOOR SYSTEM.

### - WALL FRAMING

FIRST FLOOR FRAMED PARTITIONS IN A LOG HOME MUST ALLOW FOR SETTLEMENT OF STACKED LOG WALLS WITH MOISTURE CONTENT OF 16% BY HAVING A MINIMUM OF 5" SETTling SPACE ABOVE. NEVER NAIL FRAMED WALL TO LOG WALL OR TO SHRINKAGE TRIM BOARD AT TOP.  
ALL FRAMED WALLS TO HAVE TWO TOP PLATES AN EXTRA TOP PLATE IS ATTACHED TO THE UNDERSIDE SECOND FLOOR SYSTEM, ABOVE SETTling SPACE SO TO NAIL SHRINKAGE TRIM THAT IS HIDING HIDING SETTling SPACE. UNLESS OTHERWISE NOTED, INTERIOR PARTITION WALLS ARE 2X4 @ 16" O.C TO ALLOW SECOND FLOOR VENTS & DRAINS TO PASS THROUGH.

### - ROOF:

LOG HOME ROOF SYSTEMS ARE TO PROTECT LOG BEAMS & LOG WALLS AROUND THE PERIMETER OF THE HOUSE AGAINST WEATHER DAMAGE. THIS IS ACHIEVED BY PROVIDING EXTRA WIDE OVERHANGS AND COVERED PORCHES TO PROTECT LOGS FROM RAIN & SUN. NO LOG ENDS SHOULD BE EXTENDED BEYOND ROOF LINE, UNLESS LOG ENDS ARE WRAPPED WITH A DURABLE METAL FLASHING.  
A COMMON LOG HOME ROOF SYSTEM INCLUDES RIDGEPOLDS, PURLINS AND LOG POSTS. LOG TRUSSES AND/OR LOG RAFTERS, AS LOG ROOF MEMBERS SHRINK IN DIAMETER AS THEY DRY, STEPS MUST BE TAKEN TO SEAL FROM WEATHER & INSECT INFILTRATION WHERE ROOF LOGS INTERSECT GABLE WALLS. STRUCTURAL ROOF LOGS MUST BE SLIGHTLY NOTCHED TO HOUSE EXTERIOR AND INTERIOR WALL COVER AND EXPANDABLE GASKETS MUST BE APPLIED AT THOSE LOCATIONS.  
METAL FLASHING MUST BE INSTALLED WHERE FRAME GABLE WALLS SIT ON TOP OF ALL PLATE LOGS. ALL FLASHING AROUND CHIMNEYS MUST ACCOMODATE SETTling BY INSTALLING HEAVY GAUGE FLASHING AND COUNTERFLASHING WHICH MUST FREELY SLIDE VERTICALLY PAST EACH OTHER TO ALLOW SETTling. NO ROOFING COMBUSTIBLE MATERIAL IS TO BE LESS THAN 2" FROM A MASONRY CHIMNEY AND DO NOT ALLOW LOG WORK OR ROOFING SYSTEM TO BE IN CONTACT WITH A FREE STANDING CHIMNEY UNLESS PROVISIONS FOR VERTICAL SETTling ARE IN EFFECT IN THIS CASE.

### FIRE SAFETY:

GARAGES ATTACHED TO LIVING SPACE MUST HAVE A ONE HOUR FIRE SEPARATION, CONSISTING OF 6" MINIMUM LOG THICKNESS OR 5/8" TYPE "X" GYPSUM BOARD ON ALL WALLS & CEILINGS, AND A 20 MINUTES FIRE RATED DOOR ASSEMBLY WITH AUTOMATIC CLOSING DEVICE, AND SMOKE GASKET A MINIMUM OF ONE BATTERY OPERATED SMOKE ALARM DETECTOR MUST BE INSTALLED IN HOUSE. ADD SMOKE DETECTOR IN BASEMENT TO BE WIRED WITH OTHER SMOKE DETECTOR IN THE HOUSE. INSTALL A SMOKE DETECTOR IN EACH BEDROOMS.  
IF SMOKE ALARM IS TRIGGERED, IT MUST BE HEARD IN ALL BEDROOMS.

### ELECTRICAL:

IF ATTACHED SET OF PLANS INCLUDES AN ELECTRICAL PLAN, LOCATION & AMOUNT OF ELECTRICAL OUTLETS IS ONLY SUGGESTED. THE ELECTRICAL CONTRACTOR MUST VERIFY THE ELECTRICAL LAYOUT WITH THE OWNER. THE ELECTRICAL CONTRACTOR MUST CALCULATE THE ADEQUATE AMP. SERVICE FOR THE HOUSE, SUPPLY AND INSTALL LATERAL SERVICE TO THE BUILDING, PERFORM ALL ELECTRICAL WIRING, BRING REQUIRED POWER TO ALL APPLIANCES, MEET ALL APPLICABLE CODES REQUIREMENTS, WITH ACCOMODATIONS FOR PRE-WIRING AND WALL SETTLEMENT WHERE NECESSARY.  
USUALLY SWITCH AND OUTLET BOXES ARE HIDDEN IN THE MORTISED LOG, WITH THE COVER PLATE FLUSH WITH FLATTEN PORTION OF LOG AT THAT LOCATION. WALL ELECTRICAL OUTLETS ARE USUALLY WIRED DOWN FROM ELECTRICAL BOX, THRU LOG WALL, INTO SUFLOR SPACE. ELECTRICAL SWITCHES BY DOORS ARE WIRED FROM SUBFLOOR SPACE THRU SPACE @ DOOR SPLINE BOARD, TO MORTISED SWITCH BOX. DO NOT USE CONDUITS IN A LOG WALL.  
PRE-DRILL VERTICAL HOLES IN A LOG WALL ARE A MIN. 1 1/4" IN DIAMETER TO FISH WIRES THRU.  
ALL BATHROOMS WITHOUT OPENABLE WINDOW, MUST HAVE AN ADEQUATE EXHAUST FAN INSTALLED.

### PLUMBING:

PLUMBING CONTRACTOR MUST CONSIDER THE NEED FOR SETTling ALLOWANCES IN ALL PLUMBING RUNS. PLUMBING RUNS SHOULD BE INSTALLED IN FRAMED WALLS. AVOID RUNNING PLUMBING WASTE, VENT & SUPPLY PIPES THROUGH OR WITHIN LOGWALLS. ANY FUTURE REPAIR WOULD BE VERY DIFFICULT.  
WATER LINES TO SECOND FLOOR SHOULD HAVE A FLEXIBLE LOOP THAT OPENS AS SECOND FLOOR SETTLES DOWN.  
WASTE & VENT PIPES USE A SERIES OF COMPRESSION & EXPANSION FITTINGS TO ACCOMODATE SETTling, WITH BLOCKINGS TO SUPPORT TOP & BOTTOM COMPRESSION FITTINGS TO ALLOW FITTINGS TO COMPRESS  
PLUMBING VENTS MAY BE STRAPPED OR BLOCKED AT LOWER PART, WITH ROOF SETTling AROUND VENT, AND COUNTERFLASHING SLIDING ALONG FLASHING TO ALLOW SETTling.

### CABINETRY:

CABINET MAKER MUST CHECK ALL DIMENSIONS ON SITE BEFORE STARTING ANY WORK. CABINETS MUST NOT BE SECURED TO LOG WALL UNLESS SETTling ACCOMODATIONS ARE APPLIED. ONE METHOD IS TO RECESS THE CABINETS AND COUNTERS 2" TO 3" IN THE LOG WALL. CABINETS ARE HANGED AT TOP BY SCREWING THEM INTO ONE LOG ONLY, AND THE COUNTERS ARE SCREWED TO FLOOR AND TO LOG WALL WITH SLOT FOR SETTling. ADD SETTling SPACE ABOVE SPLASH BOARD. ANOTHER METHOD IS TO INSTALL OVER LOG WALL INTERIOR FRAME WALL AND PLACE WIRING & PLUMBING IN CAVITY.

### INSULATION & THERMAL EFFICIENCY:

ROOFS & EXTERIOR FRAME WALLS ARE USUALLY INSULATED WITH BATT FIBERGLASS OR STYROFOAM RIDGID PANELS. LOG WALLS HAVE LOOSE FIBERGLASS INSULATION INSTALLED IN LATERAL GROOVES, AND NOTCHES.  
THE THERMAL VALUE OF A LOG WALL DEPENDS ON ITS MASS, OR THE DIAMETER SIZE OF THE LOGS. THE MORE MASS IN A STRUCTURE, THE LESS PRONOUNCED THE TEMPERATURE SWINGS ARE WITHIN THIS STRUCTURE. AS OUTSIDE TEMPERATURE DROPS, THE INSIDE OF THE BUILDING TENDS TO RETAIN ITS WARMTH, AS THE LOGS RELEASE HEAT STORED WITHIN THEIR MASS. CONVERSELY, IN SUMMER THE LOG HOME INTERIOR WILL REMAIN COOLER.  
AS LOG HOME LOOSES ITS MOISTURE & SHRINK, LATERAL CHECKS IN LOGS AT CROSS CORNERS SHOULD BE CAULKED TO SEAL OFF AIR INFILTRATION. A FINAL SEALING OF THE LOG HOME TAKES PLACE WHEN LOGS HAVE REACHED EQUILIBRIUM WITH THEIR ENVIRONMENT, IN ABOUT TWO TO THREE YEARS AFTER CONSTRUCTION.

### LOG HOME MAINTENANCE:

WITH ADEQUATE WOOD CARE AND PREVENTATIVE MAINTENANCE, YOUR LOG HOME WILL LAST CENTURIES. MOST WOODS CONTAIN NATURALLY OCCURING OILS THAT RESIST WEATHERING AND DECAY. BUT WITH TIME, THESE OILS ARE LEACHED FROM THE WOOD AND NEED TO BE REPLACED.  
REGIONAL CLIMATES WILL DICTATE GENERAL PRESERVATION TECHNIQUES.  
THE FIRST GENERAL RULE IS TO PREVENT WATER FROM COMING IN CONTACT WITH THE LOGS. LOGS MUST BE THOROUGHLY CLEANSED WITH A SOLUTION OF SOAP AND BLEACH, COMPLETELY DRIED BEFORE APPLYING A PRESERVATIVE SOLUTION CONTAINING A WATER REPELLENT & MILDWEICIDE. REAPPLY THE SOLUTION UNTIL LOGS WILL NO LONGER ACCEPT ANY MORE PRESERVATIVE.  
IF SUN DAMAGE ON SOUTH & WEST SIDE OF THE HOUSE IS ANTICIPATED, APPLY A PRESERVATIVE THAT CONTAINS OILS WITH PIGMENTS AS ULTRAVIOLET BLOCKERS.  
DO NOT APPLY AN IMPERMEABLE FINISH SUCH AS VARNISH OR PAINT TO THE SURFACE OF LOGS. FOLLOW APPLICATION INSTRUCTIONS TO THE LETTER, AND NEVER APPLY FINISHES NOT SPECIFICALLY FORMULATED FOR LOGS.