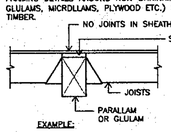
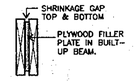
SHRINKAGE

1. FRAMING DETAILS SHALL ENSURE UNIFORM VERTICAL SHRINKAGE. ADJACENT PORTIONS OF STRUCTURE SHALL BE SUPPORTED ON ROUGHLY EQUIVALENT AMOUNTS OF HORIZONTAL TIMBER (JOISTS AND SILL PLATES). DO NOT MIX KILN-DRIED AND NON-KILN DRIED JOISTS IN ANY GIVEN FLOOR.

2. FRAMING DETAILS AROUND NON-SHRINKING STRUCTURAL ELEMENTS (CONCRETE, STEEL, PARALLAMS, GLULAMS, MICROLLAMS, PLYWOOD ETC.) SHALL TAKE INTO ACCOUNT THE SHRINKAGE OF THE TIMBER.



EXAMPLE:



EXAMPLE:

WOOD TRUSS NOTES

1. THE STRUCTURAL DRAWINGS SHOW CONCEPTUAL WOOD TRUSS FRAMING ONLY. SEE ARCHITECTURAL DRAWINGS FOR DIMENSIONS, ROOF SLOPES, ROOF OVERHANGS, ELEVATIONS, OPENINGS ETC.

2. THE DESIGN, PREPARATION OF SHOP DRAWINGS, REVIEW OF FABRICATION AND FIELD REVIEW OF INSTALLATION SHALL BE CARRIED OUT BY A SPECIALTY STRUCTURAL ENGINEER WHO SHALL BE A PROFESSIONAL ENGINEER REGISTERED IN BRITISH COLUMBIA.

3. SUBMIT WOOD TRUSS SHOP DRAWINGS BEARING THE SEAL OF THE SPECIALTY STRUCTURAL ENGINEER TO THE ARCHITECT AND THE STRUCTURAL ENGINEER FOR REVIEW. THE SHOP DRAWINGS SHALL SHOW:

   A) FRAMING LAYOUT, SECTIONS, CONNECTION DETAILS, DESIGN LOADS, WOOD SPECIES AND WOOD GRADE.

   B) COMPLETE DIMENSIONS.

   C) ALL BRACING AND BRIDGING NECESSARY FOR THE STABILITY OF THE TRUSSES DURING ERECTION AND IN THE COMPLETED STRUCTURE.

   D) HOLD DOWN ANCHORS TO RESIST WIND UPLIFT, CONNECTING ROOF TRUSSES TO THE SUPPORTING STRUCTURE.

   E) END REACTIONS OF GIRDER TRUSSES ON THE SUPPORTING STRUCTURE (IN KIPS (UNFACTORED))

4. THE WOOD TRUSS LAYOUT SHOWN ON THESE DRAWINGS HAS BEEN COORDINATED WITH THE SUPPORTING STRUCTURE BELOW. THE WOOD TRUSS LAYOUT SHALL NOT BE CHANGED WITHOUT PRIOR WRITTEN APPROVAL OF THE STRUCTURAL ENGINEER. THE COST OF REDESIGNING THE SUPPORTING STRUCTURE TO SUIT CHANGES TO THE TRUSS LAYOUT WILL BE CHARGED TO THE CONTRACTOR.

5. AT THE COMPLETION OF THE INSTALLATION OF THE WOOD TRUSSES, THE SPECIALTY STRUCTURAL ENGINEER SHALL SUBMIT A SEALED "LETTER OF PROFESSIONAL FIELD REVIEW AND COMPLIANCE" CONFIRMING THAT THE FABRICATION AND INSTALLATION HAVE BEEN CARRIED OUT IN COMPLIANCE WITH THE SHOP DRAWINGS. SAMPLES OF THESE LETTERS ARE AVAILABLE FROM THE LOCAL BUILDING AUTHORITIES.

6. THE WOOD TRUSSES SHALL BE DESIGNED FOR THE LOADS SPECIFIED IN THE GENERAL NOTES, OR AS SHOWN ON PLAN. SNOW LOADS SHALL BE BASED ON PART 4 OF THE BUILDING CODE, INCLUDING THE EFFECT OF SLIDING OR DRIFTING SNOW, PLUS ANY ADDITIONAL REQUIREMENTS SET OUT IN THE LOCAL BUILDING BY-LAW.

   THEY SHOULD ALSO BE DESIGNED FOR:

   A) A NET WIND UPLIFT OF 20 PSF (FACTORED) FOR THE ROOF TRUSSES.

   B) A VERTICAL POINT LOAD OF 200 POUNDS (UNFACTORED) APPLIED ANYWHERE ON BOTTOM CHORD (ONE POINT LOAD PER TRUSS)

7. THE WOOD TRUSSES SHALL BE DESIGNED FOR A MAXIMUM LIVE LOAD DEFLECTION OF 1/360 OF THE SPAN.

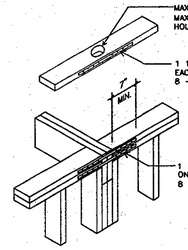
IMPERIAL EQUIVALENTS

STRUCTURAL ELEMENTS SPECIFIED IN METRIC UNITS HAVE THE FOLLOWING EQUIVALENT IMPERIAL UNITS.

JOISTS		SHEATHING		
38 x 89	=	2 x 4	6mm	= 1/4"
38 x 140	=	2 x 6	10mm	= 3/8"
38 x 184	=	2 x 8	13mm	= 1/2"
38 x 235	=	2 x 10	16mm	= 5/8"
38 x 286	=	2 x 12	19mm	= 3/4"
			22mm	= 7/8"

8. ALL LOAD BEARING WALLS SHALL HAVE 2 CONTINUOUS TOP PLATES AND 1 CONTINUOUS BOTTOM PLATE. BEAMS OR HEADERS OVER OPENINGS IN WALLS SHALL BE DROPPED TO ALLOW THE TOP PLATES TO BE CONTINUOUS.

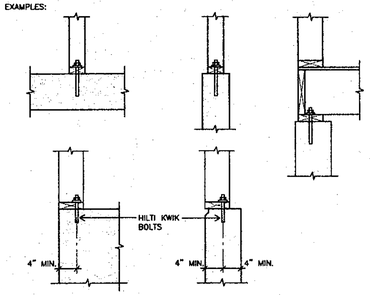
   WHERE 1 1/2" CONCRETE TOPPING IS USED ON THE FLOORS, PROVIDE 2 CONTINUOUS BOTTOM PLATES. DOUBLE PLATES SHALL BE SPLICED WITH A MINIMUM 2'-0" STAGGER AND LAPPED AT CORNERS. TOP AND BOTTOM PLATES WHICH HAVE BEEN CORED OR WHICH ARE DISCONTINUOUS SHALL BE REINFORCED AS FOLLOWS:



9. WHERE PERMANENT SHEATHING IS NOT APPLIED TO STUDS PROVIDE BLOCKING @ 40" O/C FOR 2 X 4 WALLS AND 24" O/C FOR 2 X 6 WALLS.

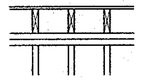
10. FASTEN WOOD-FRAME STRUCTURE AT BASE BY BOLTING THE BOTTOM PLATE (SILL PLATE) TO THE CONCRETE WITH 1/2"ø ANCHOR BOLTS @ 4'-0" o/c UNLESS NOTED OTHERWISE. ANCHOR BOLTS SHALL HAVE A MINIMUM 3" EMBEDMENT AND A MINIMUM 3" PROJECTION ABOVE THE CONCRETE. THE ANCHOR BOLTS MAY BE CAST IN PLACE OR GROUTED INTO PREDRILLED HOLES WITH THE HILTI-HIT SYSTEM. HILTI-KWIK BOLTS WITH A 3" EMBEDMENT MAY BE USED WITH A 4" OR GREATER EDGE DISTANCE. NON-LOAD-BEARING WALLS MAY BE FASTENED WITH 1/8" DIA. POWER DRIVEN FASTENERS @ 1'-4" o/c (MINIMUM 3/4" PENETRATION INTO CONCRETE). FULL WIDTH OF WALLS SHALL BEAR ON CONCRETE UNLESS NOTED OTHERWISE.

EXAMPLES:



11. SILL PLATES SHALL BEAR ON A LEVEL SURFACE; PROVIDE A LEVELLING BED OF MORTAR IF REQUIRED. PROVIDE A FOAM SILL GASKET UNDER SILL PLATES BEARING ON CONCRETE. SILL PLATES ON CONCRETE SHALL BE PRESERVATIVE TREATED OR SATISFY NOTES ON "MOISTURE BARRIERS".

12. WHERE THE SPACING OF JOISTS OR ROOF TRUSSES MATCHES THE SPACING OF THE STUDS IN THE SUPPORTING WALL (OR A MULTIPLE THEREOF), EACH JOIST OR TRUSS SHALL BEAR DIRECTLY OVER A STUD.



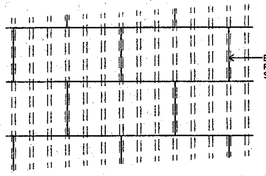
SHEATHING

1. A) ROOF SHEATHING ON SLOPED ROOF ONLY
   1/2" PLYWOOD (USE TONGUE AND GROOVE PLYWOOD OR PROVIDE 2 x 4 BLOCKING OR H-CLIPS AT UNSUPPORTED JOINTS).

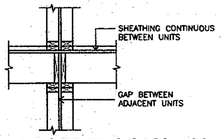
   B) FLAT ROOF SHEATHING 3/4" TONGUE & GROVE PLYWOOD.

   C) EXTERIOR WALL SHEATHING 3/8" PLYWOOD ON EXTERIOR SIDE.

2. LAY FLOOR AND ROOF SHEATHING WITH THE SURFACE GRAIN AT RIGHT ANGLES TO THE JOISTS. STAGGER THE JOINTS PARALLEL TO THE JOISTS.



FLOOR & ROOF SHEATHING SHALL BE CONTINUOUS ACROSS PARTY WALLS BETWEEN ADJACENT UNITS UNLESS NOTED OTHERWISE ON THE STRUCTURAL DRAWINGS.



DRYWALL OR SHEATHING ON LOAD BEARING WALLS OR SHEAR WALLS SHALL BE FASTENED DIRECTLY TO THE STUDS, WITHOUT THE USE OF RESILIENT METAL CHANNELS.

JOISTS CONTINUED

6. JOISTS ARE TO BE FLUSH UNLESS NOTED OTHERWISE. USE JOIST HANGERS OR FRAMING ANCHORS TO CONNECT JOISTS. PRESSURE BLOCKING MAY NOT BE USED UNLESS JOIST SPANS ARE LESS THAN 6'-0".

FLUSH JOISTS

7. UNLESS NOTED OTHERWISE JOIST HANGERS OR FRAMING ANCHORS SHALL BE CAPABLE OF DEVELOPING THE SHEAR STRENGTH OF THE SUPPORTED MEMBER. FOR JOISTS, THE FOLLOWING CAPACITIES ARE REQUIRED:

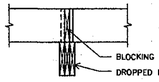
JOIST SIZE	ALLOWABLE SHEAR (lbs)	
	WORKING LOAD	ULTIMATE LOAD
2 x 4	497	897
2 x 6	645	903
2 x 8	725	1016
2 x 10	850	1191
2 x 12	940	1317

BEAMS

1. BUILT-UP BEAMS (ie 3 - 2 x 10) SHALL BE NAILED TOGETHER WITH 2 ROWS OF 3" NAILS, EACH ROW WITH NAILS @ 12" o/c. INDIVIDUAL MEMBERS MAY NOT BESPLICED BETWEEN SUPPORTS.

2. FLUSH BEAMS

3. DROPPED BEAMS



4. U.N.O. ALL EXTERIOR WALL BEAMS, INTERIOR WALL BEAMS, AND DOOR HEADER BEAMS ARE DROPPED. U.N.O. ALL OTHER INTERIOR BEAMS ARE FLUSH.

5. USE 2 - 2 X 10 BEAMS OVER ALL OPENINGS IN BEARING WALLS UNLESS NOTED OTHERWISE. BEAMS SHALL BE SUPPORTED AT EACH END WITH 2-PLY STUD POST UNLESS NOTED OTHERWISE.

WALLS

1. LOAD BEARING WALLS: ——— DENOTED ON PLAN THUS

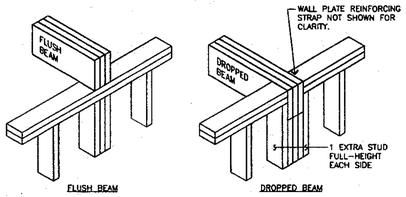
2. STUD WALLS SHALL BE AS DESIGNATED IN TABLE BELOW UNLESS NOTED OTHERWISE ON PLANS.

	INTERIOR NON LOAD BEARING WALLS	STAGGERED STUDS CORRIDOR WALLS	NON LOAD BEARING PARTY WALLS	LOAD BEARING PARTY WALLS
LVL 4 - ROOF	2x4 @ 16"	2x6 @ 19.2"	2x4 @ 16"	2x6 @ 19.2"
LVL 3 - 4	2x4 @ 16"	2x6 @ 19.2"	2x4 @ 16"	2x6 @ 19.2"
LVL 2 - 3	2x4 @ 16"	DBL 2x6 @ 19.2"	2x4 @ 16"	DBL 2x6 @ 19.2"
LVL 1 - 2	2x4 @ 16"	DBL 2x6 @ 19.2"	2x4 @ 16"	DBL 2x6 @ 19.2"

3. STUDS SHALL BE LOCATED DIRECTLY UNDER SUPPORT LOCATION OF WOOD TRUSSES.

4. NON LOAD BEARING WALLS - STUDS AT 16" o/c MAXIMUM

5. UNLESS NOTED OTHERWISE, PROVIDE A BUILT-UP STUD POST AT THE ENDS OF ALL BEAMS FRAMING INTO A WALL. THE BUILT-UP STUD POST SHALL MATCH THE WIDTH OF THE BEAM, AND THE STUD SIZE SHALL MATCH THOSE IN THE WALL.

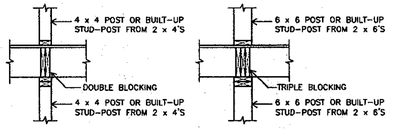


FLUSH BEAM DROPPED BEAM

AT THE ENDS OF GIRDER TRUSSES, PROVIDE A MINIMUM 3 STUD BUILT-UP POST

6. BUILT-UP STUD POSTS SHALL HAVE EACH PLY NAILED TOGETHER WITH 1 ROW OF 3" NAILS @ 12" O/C UNLESS NOTED OTHERWISE. FOR BUILT-UP STUD POSTS WITHIN A LOAD BEARING WALL, THE STUD SIZE SHALL MATCH THOSE IN THE WALL, AND ARE INDICATED THUS; 3S, i.e. "3S" MEANS 3 STUDS.

7. ALL POSTS AND BUILT-UP STUD POSTS SHOWN ON ANY LEVEL SHALL BE CARRIED DOWN TO THE CONCRETE UNLESS NOTED OTHERWISE. PROVIDE SOLID BLOCKING BETWEEN JOISTS UNDER ALL POSTS AND BUILT-UP POSTS.



WOOD FRAMING NOTES

GENERAL

1. ALL DESIGN, DETAILS, MATERIALS AND CONSTRUCTION PROCEDURES SHALL CONFORM TO CURRENT EDITIONS OF THE FOLLOWING AS A MINIMUM:
   - B.C. BUILDING CODE - 1998 PART 9
   - CAN/CSA-086 ENGINEERING DESIGN IN WOOD
   - CAN/CSA-0121 DOUGLAS FIR PLYWOOD
   - CAN/CSA-I.O 400O PARALLAMS AND MICROLLAMS
   - CAN/CSA-0122 STRUCTURAL GLUED-LAMINATED TIMBER
   - CAN/CSA-0177 QUALIFICATION CODE FOR MANUFACTURERS OF STRUCTURAL GLUED-LAMINATED TIMBER
   - CAN/CSA-0437 STRANDBOARD AND WAFERBOARD
   - CAN/CSA-B111 WIRE NAILS, SPIKES AND STAPLES
   - CAN/CSA-B34 MISCELLANEOUS BOLTS AND SCREWS
   - CANADIAN WOOD-FRAME HOUSE CONSTRUCTION-CMHC
   - "WOOD DESIGN MANUAL" - CANADIAN WOOD COUNCIL
   - "WOOD BUILDING TECHNOLOGY" - CANADIAN WOOD COUNCIL

2. ANY CHANGES TO THE FRAMING SHOWN ON THESE DRAWINGS SHALL HAVE PRIOR WRITTEN APPROVAL OF THE STRUCTURAL ENGINEER. FRAMING CHANGES WHICH HAVE NOT BEEN SO APPROVED WILL BE REJECTED.

3. CONFIRM ALL DIMENSIONS AND OUTLINES WITH THE ARCHITECTURAL DRAWINGS. SEE ARCHITECTURAL DRAWINGS FOR ADDITIONAL DIMENSIONS, ELEVATIONS AND DETAILS.

4. ANY TIMBER NOT GRADE MARKED WILL BE REJECTED

5. FINISHES SHALL BE DETAILED TO ACCOMMODATE SHRINKAGE OF THE TIMBER OVER TIME.

6. DO NOT COVER WOOD FRAMING WITH FINISHES UNTIL THE STRUCTURAL ENGINEER'S FRAMING REVIEW IS COMPLETE. PROVIDE 24 HOURS ADVANCE NOTIFICATION WHEN FRAMING REVIEWS ARE REQUIRED.

7. NOTCHING AND DRILLING OF STRUCTURAL ELEMENTS SHALL FOLLOW THE GUIDELINES SET FORTH IN THE BUILDING CODE PART 9, UNLESS OTHERWISE APPROVED IN WRITING BY READ JONES CHRISTOFFERSEN.

8. ALL TIMBER ELEMENTS ARE DESIGNED FOR DRY-SERVICE CONDITIONS. SEE ARCHITECTURAL DRAWINGS FOR WATERPROOFING AND VENTILATION DETAILS.

MATERIALS

1. STUDS & BUILT-UP POSTS TO BE S-P-F #3/STUD GRADE OR BETTER. STUDS MAY BE FINGER-JOINTED (MAXIMUM 3 JOINTS/STUD) EXCEPT NO FINGER JOINTED STUDS AT THE ENDS OF SHEAR WALLS.
2. JOISTS TO BE S-P-F # 2 GRADE OR BETTER.
3. BUILT-UP BEAMS AND HEADERS TO BE S.P.F. # 2 GRADE OR BETTER.
4. WALL PLATES TO BE S-P-F #3/STUD GRADE WALL PLATES SHALL BE KILN-DRIED AND MAY BE FINGER JOINTED.
5. POSTS AND BEAMS TO BE S.P.F. # 2 GRADE OR BETTER.
6. ALL DIMENSION LUMBER TO BE SURFACED FOUR SIDES ("S4S")
7. PLYWOOD TO BE DOUGLAS FIR SHEATHING GRADE.
8. TIMBER CONNECTION HARDWARE TO BE SIMPSON STRONG-TIE, CANADA SCAFFOLD SUPPLY, MGA CONNECTORS OR APPROVED EQUIVALENT. COMPLETE WITH NAILS SUPPLIED BY MANUFACTURER. DO NOT USE P NAILS
9. NAILS SHALL BE COMMON ROUND STEEL WIRE NAILS OR COMMON SPIRAL NAILS.
10. MISCELLANEOUS STEEL TO BE G40.21 OR APPROVED EQUAL.
11. ANCHOR BOLTS SHALL BE ASTM A307 OR A36 OR APPROVED EQUAL. ANCHOR BOLTS SHALL BE DEFORMED, THREADED ALONG THEIR FULL LENGTH OR HOOKED 1 1/2" AT THE BOTTOM.
12. BOLTS SHALL BE ASTM A307 OR APPROVED EQUAL, USED WITH STANDARD CUT STEEL WASHERS UNLESS NOTED OTHERWISE ON DRAWINGS.

FRAMING NOTES

NAILING

1. NAILING SHALL CONFORM TO THE BUILDING CODE PART 9, AND "WOOD BUILDING TECHNOLOGY" PUBLISHED BY THE CANADIAN WOOD COUNCIL. NAILING CALLED UP ON THESE DRAWINGS (ie FOR SHEATHING) IS BASED ON COMMON NAILS. IF SMALLER DIAMETER NAILS (ie PNEUMATICALLY DRIVEN NAILS OR "P-NAILS") ARE USED, INCREASE THE NUMBER OF NAILS BY 33%.
2. UNLESS NOTED OTHERWISE NAIL ALL WALL, FLOOR AND ROOF SHEATHING WITH 2 1/2" NAILS @ 6" O/C AT SUPPORTED EDGES OF SHEATHING SHEETS, AND @ 10" O/C FOR FLOORS AND @ 12" O/C FOR ROOFS AT INTERMEDIATE SUPPORTS TO ALL SUPPORTING MEMBERS. FLOOR SHEATHING SHALL BE NAILED WITH SPIRAL NAILS AND SHALL BE GLUED TO THE JOISTS IN ADDITION TO NAILING.
3. DO NOT USE PNEUMATICALLY DRIVEN NAILS WITH JOIST HANGERS OR CONNECTING HARDWARE. NAILS FOR HARDWARE SHOULD BE AS SPECIFIED OR SUPPLIED BY MANUFACTURER.

MOISTURE BARRIERS

1. PROVIDE A MOISTURE BARRIER BETWEEN WOOD ELEMENTS AND ALL CONCRETE OR MASONRY. THIS CAN BE A SHEET OF LIGHT-GAUGE METAL, A PIECE OF ASPHALT IMPREGNATED BUILDING PAPER (15 POUNDS PER 100 SQ. FEET) OR A PIECE OF CLOSED-CELL FOAM GASKET MATERIAL TYPE 'S' ROLL ROOFING, OR .05mm POLYETHELENE

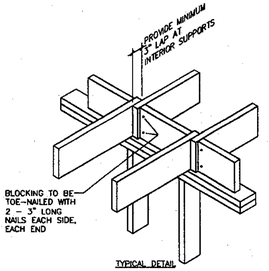
JOISTS

1. AS A MINIMUM UNLESS NOTED OTHERWISE ON PLAN, USE 2 X 10 @ 16" o/c FOR ROOF AND FLOOR JOISTS.

INDICATES EXTENT OF JOISTS

INDICATES DIRECTION OF JOISTS. THE TERM "JOIST" REFERS TO CONVENTIONAL SAWN TIMBER JOISTS AND TJI'S.

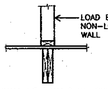
2. DIMENSIONAL LUMBER JOISTS SHALL HAVE CROSS-BRIDGING OR FULL-DEPTH BLOCKING @ 6'-0" ALONG THE SPAN. CROSS BRIDGING SHALL CONSIST OF 2 X 2 TIMBER OR APPROVED STEEL BRIDGING. TJI JOISTS SHALL BE BLOCKED AS PER MANUFACTURER'S REQUIREMENTS. JOISTS SHALL HAVE FULL-DEPTH BLOCKING OVER LOAD BEARING WALLS, DROPPED BEAMS OR HEADERS.



TYPICAL DETAIL

3. TRIM OPENINGS IN FLOORS AND ROOFS (ie STAIRS, FIREPLACES, SKYLIGHTS ETC) WITH DOUBLE JOISTS UNLESS NOTED OTHERWISE.

4. PROVIDE DOUBLE JOISTS UNDER PARALLEL FRAME WALLS UNLESS NOTED OTHERWISE.



5. STAIRS & STRINGERS SHALL BE FRAMED IN ACCORDANCE WITH THE BUILDING CODE PART 9, UNLESS NOTED OTHERWISE.

DO NOT BUILD FROM THIS DRAWING UNLESS IT HAS BEEN MARKED "ISSUED FOR CONSTRUCTION" AND SIGNED BY THE ENGINEER IN THE ABOVE COLUMN.

NO.	REVISION	DATE	BY
1	ISSUED FOR BUILDING PERMIT	OCT 07 03	

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SHEET TITLE: GENERAL NOTES & TYPICAL DETAILS

DESIGN	W.G.	SHEET NO.
DRAWN	K.G.	S1.4
PROJECT	21154-01	OF