

# STRUCTURAL

**International Centre for Sturgeon Studies  
Vancouver Island University  
Structural Design Report**

**1. Design Criteria**

Code	2008 British Columbia Building Code		
Snow Load (1/50)	Ss	=	2.3 kPa
	Sr	=	0.4 kPa
Wind	1/10	=	0.47 kPa
	1/50	=	0.63 kPa
Seismic Data	Sa (0.2)	=	1.0
	Sa (0.5)	=	0.69
	Sa (1.0)	=	0.35
	Sa (2.0)	=	0.18
	PGA	=	0.50

**2. Geotechnical**

Foundations are expected to be set on glacial till with an allowable design bearing pressure of 250 kPa with a site Class C for seismic design.

**3. Building Systems**

For the purpose of this report, the elevation with the aeration tower and enclosed stairwell is the west elevation.

Roof

- Upper roof over aeration tower is a 150 mm precast cast concrete slab supported by two 200 mm concrete wall fins running east/west.
- Upper roof over central vaulted area is 50 mm nominal T&G D. Fir decking spanning north/south to interior sloping 80 mm x 229 mm glulam purlins supported by 175 mm x 302 mm glulam valley and edge beams supported down to the main floor using eight 152 mm x 175 mm glulam columns.
- Upper roof over east stairwell from roof terrace is 38 mm steel roof deck supported by steel beams and HSS columns.
- Main roof is 38 mm steel roof deck supported by 610 mm open web steel joists at approximately 1.6 m o/c spanning east/west.

Second Floor

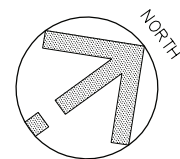
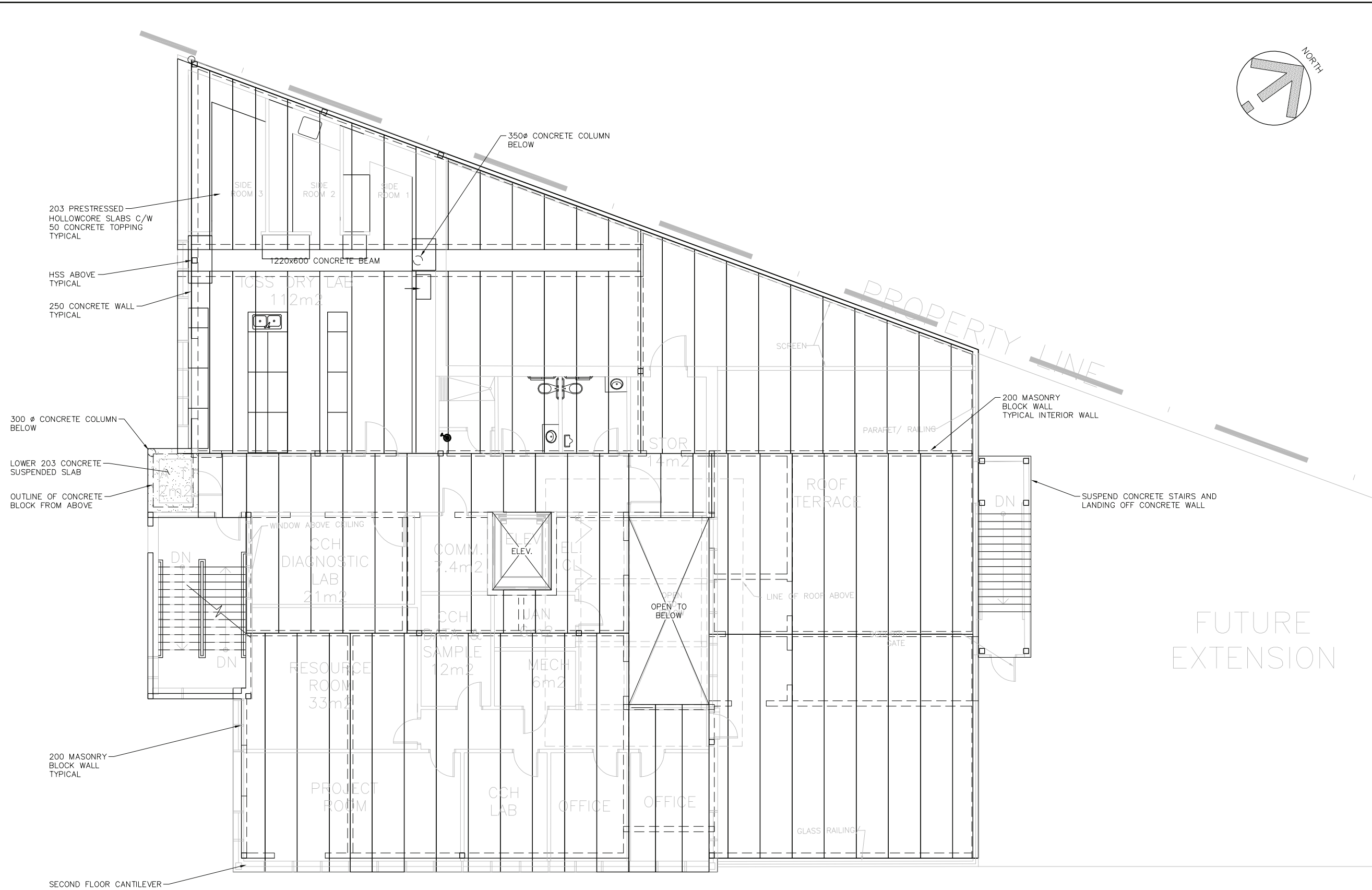
50 mm concrete topping on 203 mm prestressed concrete Hollow Core floor panels spanning north/south supported by exterior 250 mm concrete walls and interior 203 mm concrete block masonry walls. There will be 600 mm deep by 1220 mm wide concrete slab band running east/west above the Fish Culture Area with a single 350 mm diameter concrete column supporting the slab band at a central location that avoids the fish tanks.

First Floor

125 mm reinforced concrete slab on grade depressed in various areas to accommodate the 6.0 m diameter sturgeon tanks.

Seismic Design

The lateral load resisting system for the building will be steel roof diaphragms and concrete floor diaphragms transferring lateral loads to upper level braced steel frames and/or steel moment frames and lower level concrete and masonry shear walls.



No. DATE ISSUED FOR

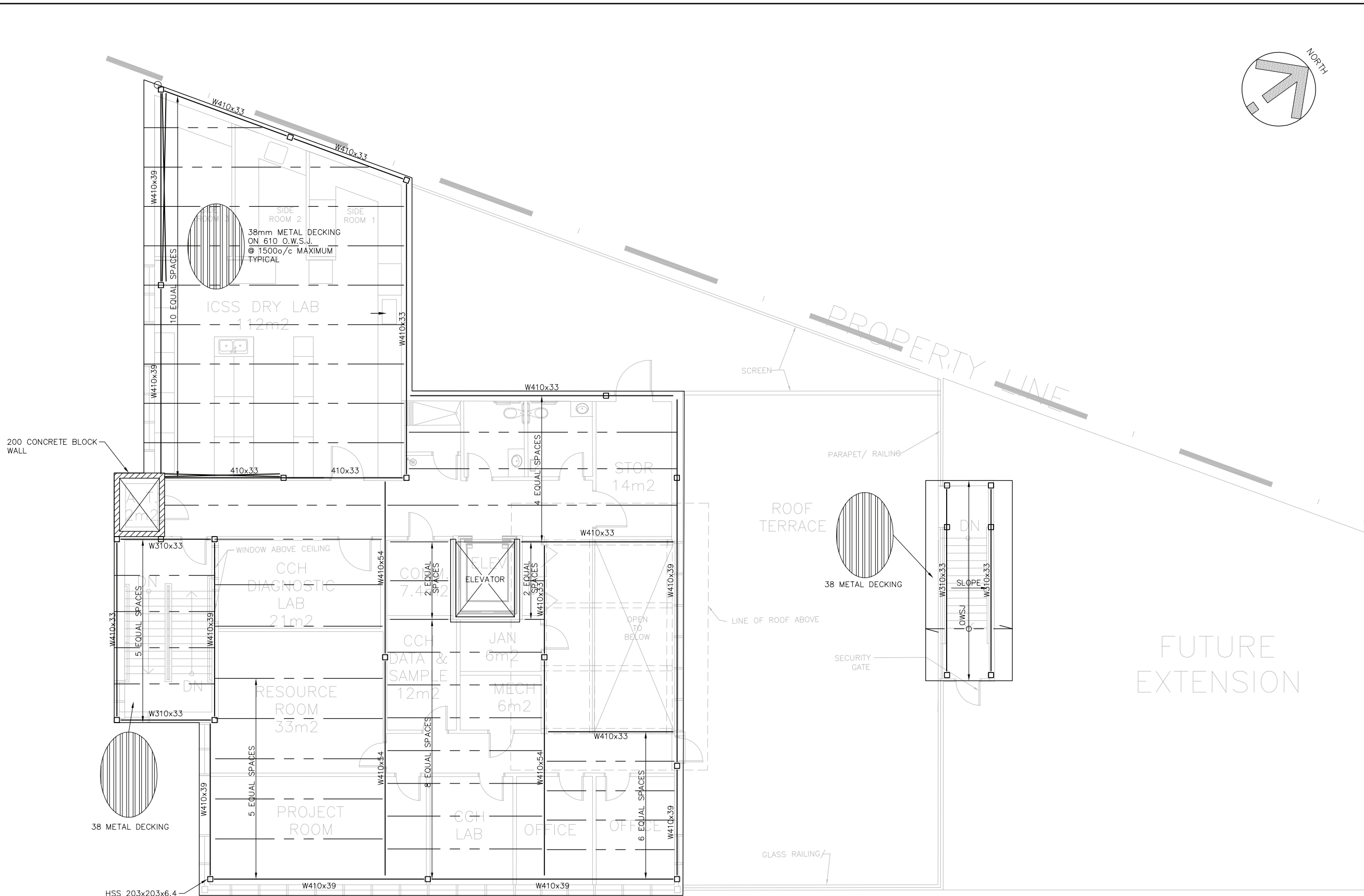
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 NANAIMO, B.C.**  
 VANCOUVER ISLAND UNIVERSITY - NANAIMO CAMPUS

**SCEOND FLOOR  
 FRAMING PLAN**

DESIGNED MH	ENGINEERS SEAL	
DESIGN REVIEW -		
DRAFTED MG		
DRAFTING REVIEW -		
PROJECT No. 1691-003	DATE 2008.09.29	
SCALE 1:150	SHEET	REV
DRAWING No. <b>S202</b>		



**ROOF FRAMING PLAN**  
1:150

No. DATE **mm/dd/yy** ISSUED FOR

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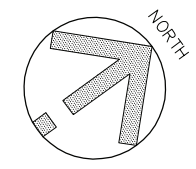
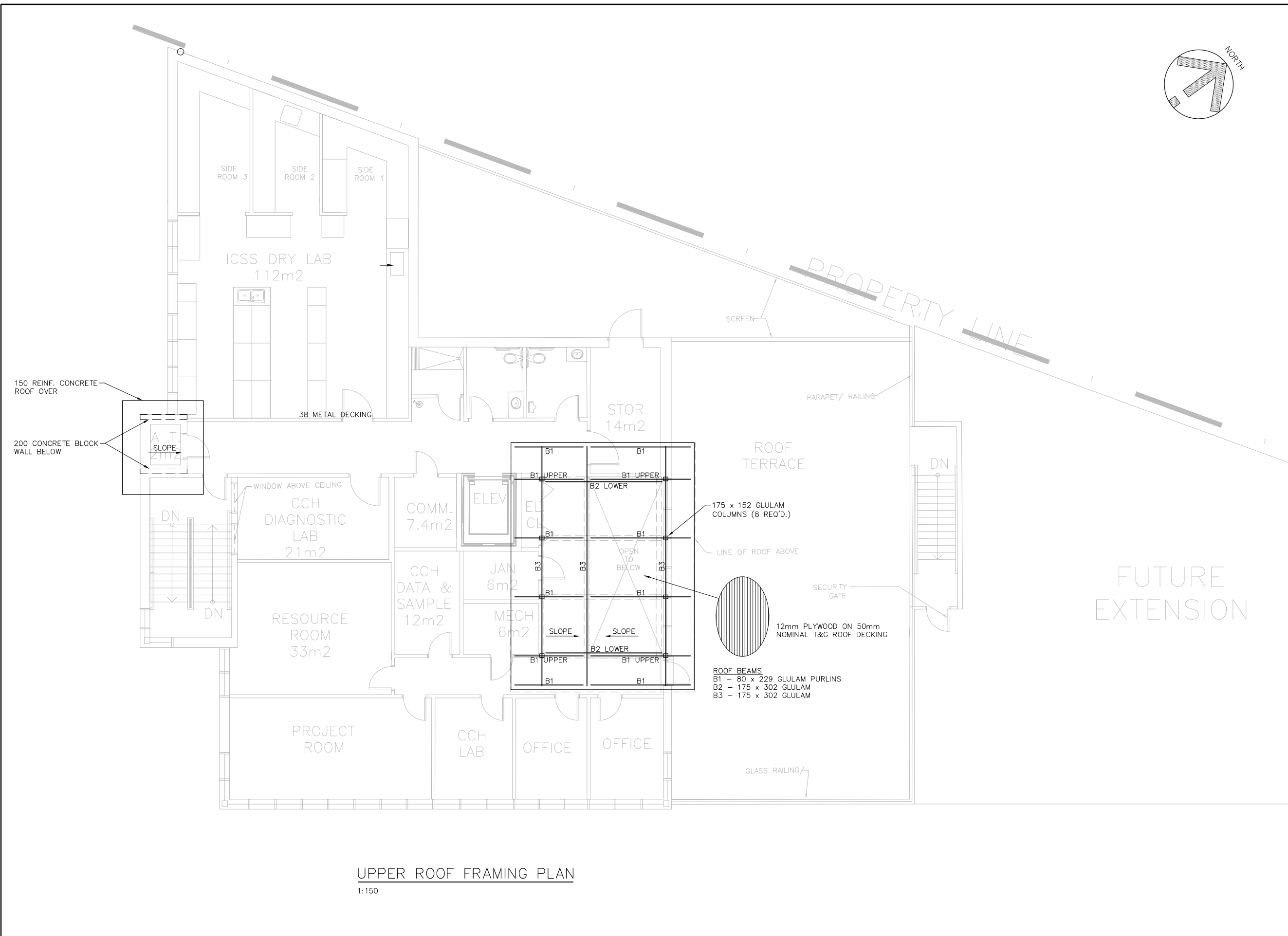
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**ROOF & UPPER ROOF PLANS**

DESIGNED MH	ENGINEERS SEAL	
DESIGN REVIEW -		
DRAFTED MG		
DRAFTING REVIEW -		
PROJECT No. 1691-003	DATE 2008.09.29	
SCALE 1:150	SHEET	REV
DRAWING No. <b>S203</b>		

File: H:\Projects\1691-003 VU International Sturgeon Centre\045 Drawings\Structural\1691-003-S203.dwg Plot Time: Oct 23, 2008 - 3:28pm User: alanle  
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TABLOID 11" x 17"



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**ROOF & UPPER ROOF PLANS**

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SCALE 1:150	SHEET	REV
DRAWING No.		

**S204**

**UPPER ROOF FRAMING PLAN**  
1:150