Project: Spigot Balustrade	**Contract:** 1172-1
Subject: Glass Analysis	**Sheet No.** 1
Date: 20/09/2018	**By:** C.He.

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Spigot Balustrade – 0.74kN/m Balustrade Load

Analysis By	Checked By
C.He./C.Hi.	T.S.

0	20/09/2018	C.He.	Issued
Revision	**Date**	**Issued By**	**Comment**

Project: Spigot Balustrade	**Contract:** 1172-1
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Attachments

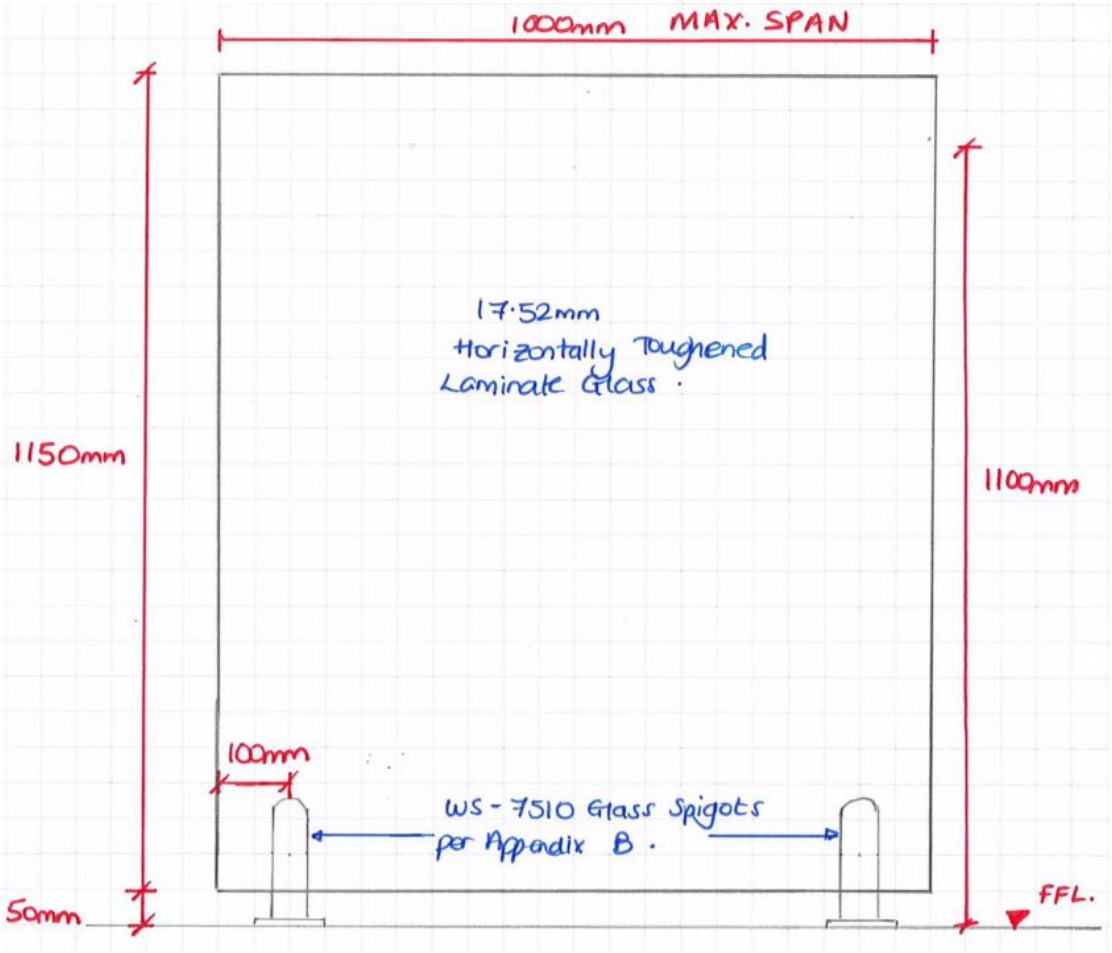
Project: Spigot Balustrade	**Contract:** 1172-1
Subject: Summary of Calculations	**Sheet No.** 3
Date: 20/09/2018	**By:** C.He.

Summary of Calculation Results:

Analysis	Results
Bending Stress in Glass	77.09N/mm^2 < 84.2N/mm^2
Deflection of Glass	16.45mm < 25mm

- Glass of maximum panel span 1000mm wide x 1150mm high per sketch analysed.
- Glass panel adequate in bending and deflection subject to 0.74kN/m Balustrade Load at 1.1m above FFL.
- Spigot not included as part of analysis.

Sketch of System:



Project: Spigot Balustrade	**Contract:** 1172-1
Subject: 0.74kN/m – 17.52mm Glass	**Sheet No.** 4
Date: 20/09/2018	**By:** C.He./C.Hi.

Bending Stress of Glass Panel due to 0.74kN/m Horizontal Loading:

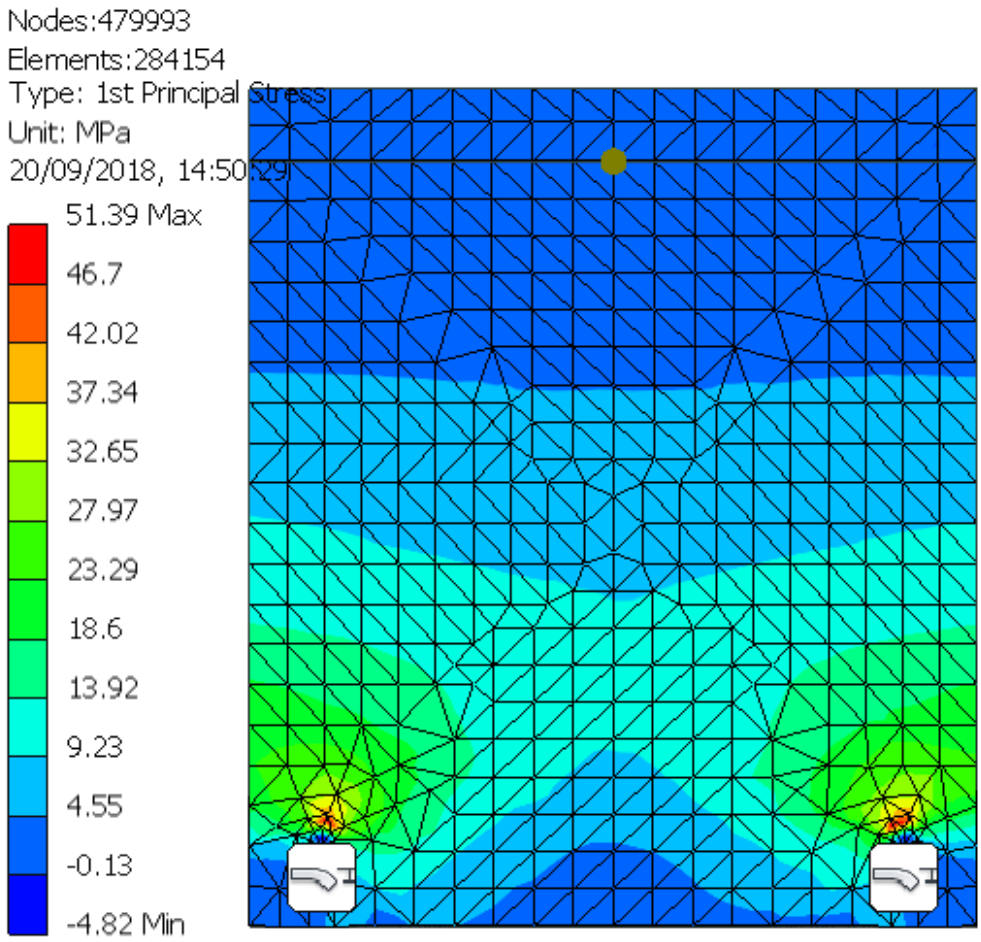
- Analysis Software was used to determine maximum bending stress of the glass due to 0.74kN/m horizontal loading
- Laminate Glass Panel: 8mm/8mm/1.52 Interlayer
- Interlayer Properties used for analysis E= 3Mpa, G = 1Mpa
- Bending stress analysed based on glass panel span of 1000mm wide x 1150 high
- Height of Glass above FFL = 1200mm
- 0.74kN/m load applied at 1100mm above FFL
- Glass Panel restrained by 2 nr WS 7510 Glass Spigots at base

Result:

Max. Bending Stress = 51.39N/mm^2

Applying Safety Factor of 1.5 Max. Bending Stress = 77.09N/mm^2 < 84.2N/mm^2

OK in Bending



TSA TED SINGLETON & ASSOCIATES CONSULTING ENGINEERS	

Project: Spigot Balustrade	**Contract:** 1172-1
Subject: 0.74kN/m – 17.52mm Glass	**Sheet No.** 5
Date: 20/09/2018	**By:** C.He./C.Hi.

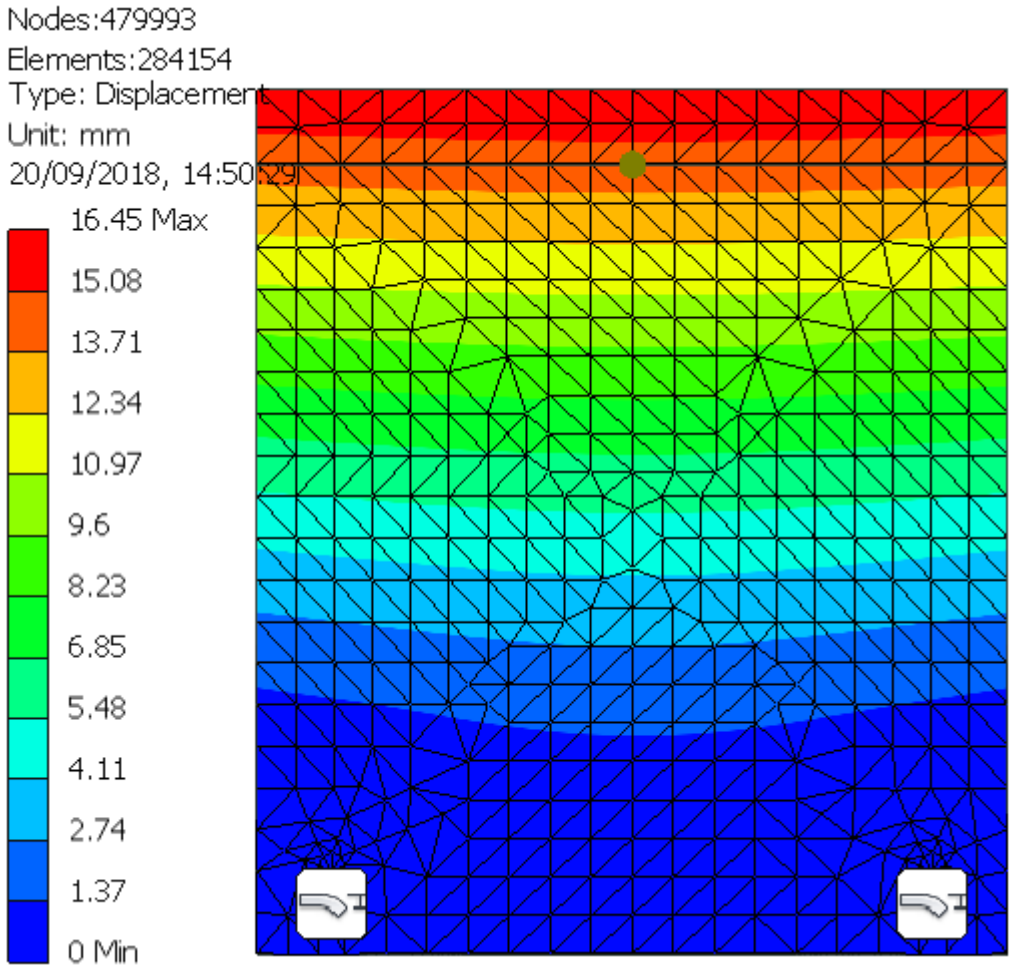
Deflection of Glass Panel due to 0.74kN/m Horizontal Loading:

- Analysis Software was used to determine maximum deflection of the glass due to 0.74kN/m horizontal loading
- Laminate Glass Panel: 8mm/8mm/1.52 Interlayer
- Interlayer Properties used for analysis E= 3Mpa, G = 1Mpa
- Deflection analysed based on glass panel span of 1000mm wide x 1150 high
- Height of Glass above FFL = 1200mm
- 0.74kN/m load applied at 1100mm above FFL
- Glass Panel restrained by 2 nr WS 7510 Glass Spigots at base

Result:

Max. Deflection (represents deflection of glass only) = 16.45mm < 25mm {BS6180:2011 cl. 6.4.1}

OK in Deflection (GLASS ONLY)



Appendix A:

Glass Strength Calculations

Project: Spigot Balustrade	**Contract:** 1172-1
Subject: Glass Strength Calculations	**Sheet No.** A.1.
Date: 20/09/2018	**By:** C.He.

Glass Strength Calculation:

Horizontally Toughened Glass

Balustrade Loading: < 5mins duration => $k_{mod} = 0.77$

$f_{gd} = (k_{mod})(k_{sp})(f_{gk})/ \gamma_{ma} + k_v(f_{bk}-f_{gk})/\gamma_{mv}$

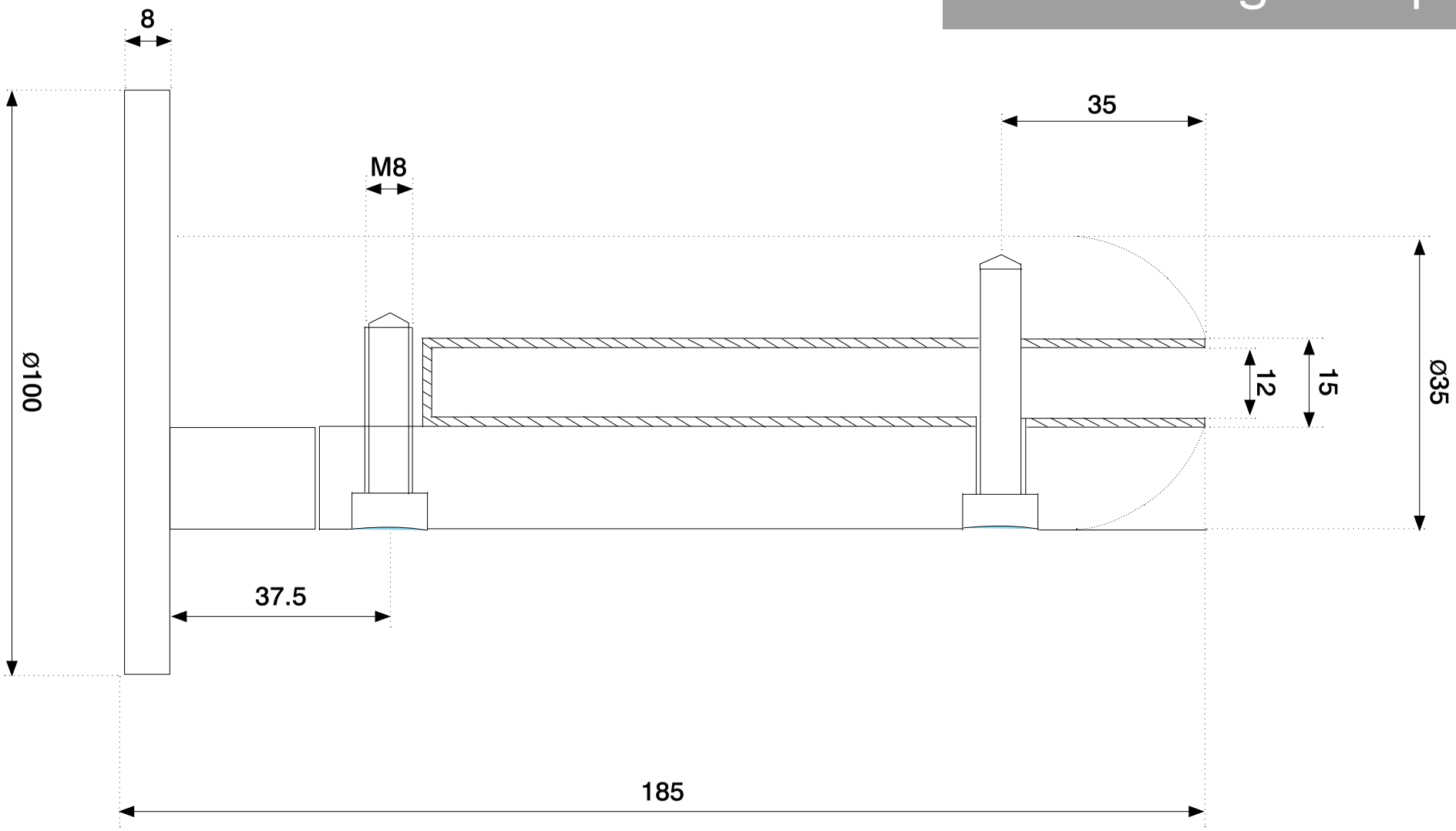
$f_{gd} = (0.77)(1.0)(45)/1.6 + 1.0(120-45)/1.2$

$f_{gd} = 84.2N/mm^2$

Appendix B:

WS–7510 Glass Spigot

WS-7510 glass spigot



MADE2 measure

your choice.
your design.