

- Building Control Officer
- Local Authority Conservation Officer
- MEP Engineer
- Acoustic Engineer
- Fire Engineer
- Structural/ Drainage Engineer

Access to the roof is limited and roof condition and build-up to be confirmed

All products to be installed to manufacturer's requirements & Building Regulation compliance.
Product systems to be used where practicable

Drawings to be read in conjunction with:

- Donald Insall Associates Condition Report.
- Khan + Li Architects Drawings

Survey Information

- Drawings based on information from Khan + Li Architects only and all dimensions to be confirmed
- Timber survey to undertaken to establish integrity of key structural elements

Insulation

- Insulation specification to meet the requirements of Approved Doc L and B
- Insulation specification to be agreed with fire engineer

Floors

- Floor build-up to meet the requirements of Approved Doc E and be agreed and approved by acoustician
- Floor build-up to meet the requirements of Approved Doc B and be agreed and approved by fire engineer.
- Separating floors to achieve 60 minute fire protection; detail by others
- Servicing strategy to be developed with MEP engineer to maintain fire and acoustic separation

Windows

- Glazing specification to meet the requirements of Approved Docs L and E
- Opening lights to be agreed as part of ventilation strategy with MEP Engineer
- Window specification to agreed with Local Authority Conservation Officer

Roof

- Glazing specification to meet the requirements of Approved Doc L
- New roof coverings and rooflights to be agreed with Local Authority Conservation Officer
- Condition/ build-up of existing roof to be confirmed
- Access to valley gutters to be confirmed as part of access and maintenance strategy

Drainage

- Gutters and rainwater goods shown are indicative and to be developed in conjunction with structural engineer and wider drainage strategy
- Details to comply with the British Lead Sheet Association Details
- Temporary measures to be installed for water ingress prevention, until permanent elements are fitted

Project MAN.WHWS.01	No 3306	
Scale (A3)	Status	Revision

SPECIFICATION AND DESIGN CONSIDERATIONS

- Spacing of drips depends on the code of lead specified.
- Consider minimum code 5 for gutters, See Detail Sheet 2G for use of splash laps on rolls.
- Finished height of roll on the lower level should be not less than 5mm below the top edge of the drip on the upper level. See drawings 1G, 2G, 7G, 12R, 13R, 17R and 18R.
- Gutter bays code of lead sheet to specify will depend on design life of building, exposure to wind and anticipated foot traffic. See Detail Sheet No 1R
- Minimum fall recommended for gutters is 1 in 80. Consider designing at min 1 in 60 to accommodate variations on site.
- Splash laps on drips can only be omitted on gutter linings.

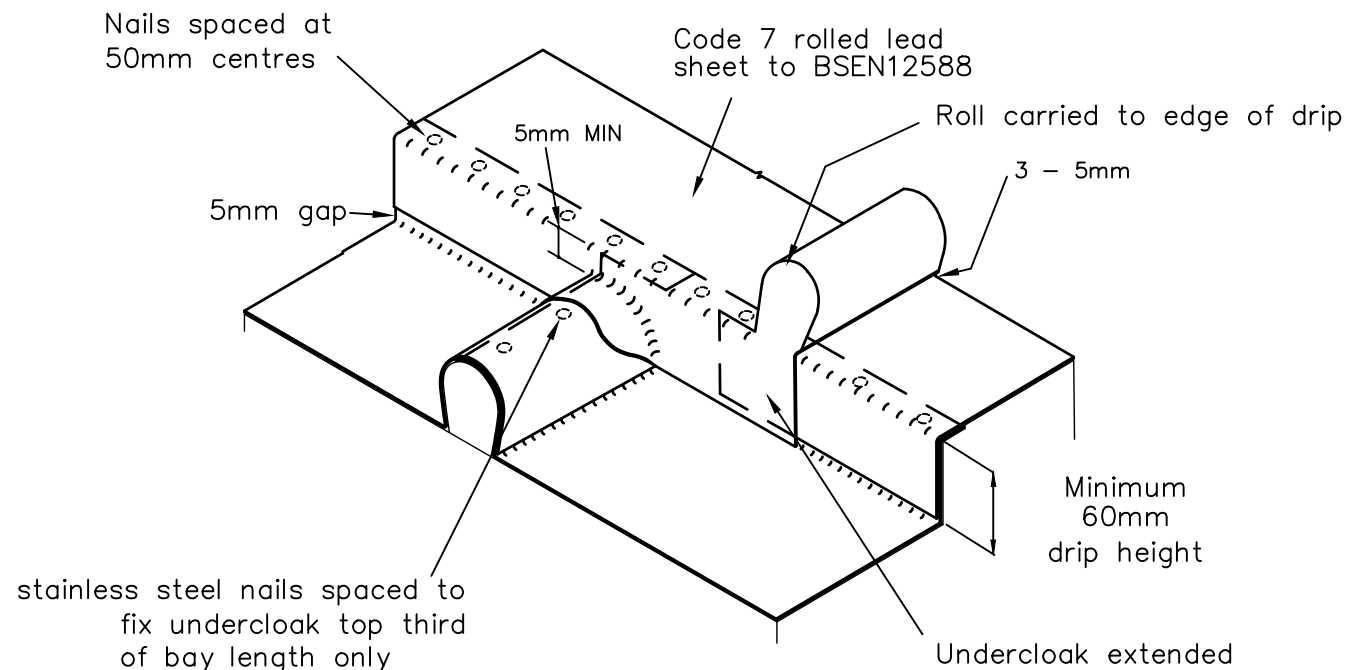
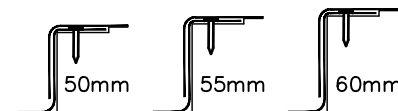


Table 7			Table 8	
BSEN12588 Code No.	Max.Length between drips mm	Max.overall girth mm	Gutters without rolls minimum	Gutters divided with rolls drip height(mm)
4	1500	750	50	55
5	2000	800	50	55
6	2250	850	50	55
7	2500	900	60	60
8	3000	1000	60	60



Lead Sheet Association
Telephone 01892 822773
Fax 01892 823003

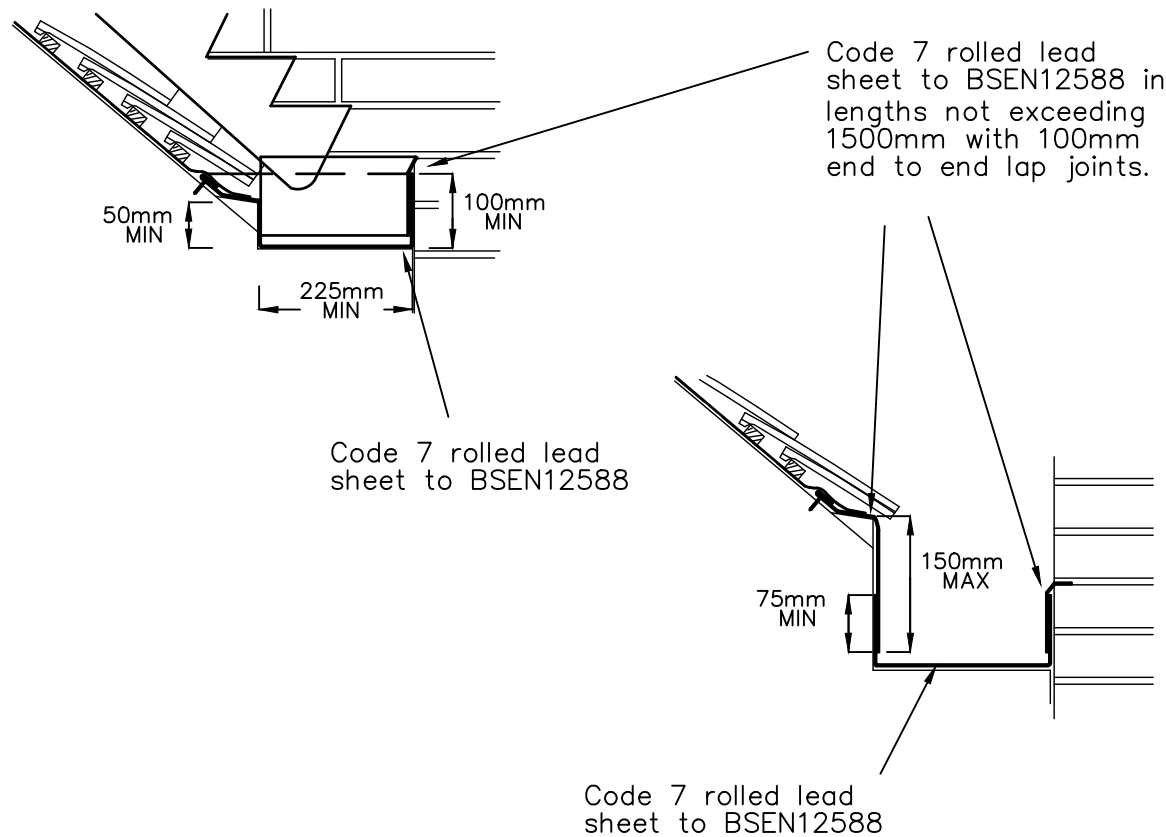


Standard Detail Sheet No. 1G
7 Title Gutter Drip and Rolls No
Splash Laps(Codes 7 and 8)

Contract
InformationPractice
Details

Publication Reference:
Lead Sheet Manual Volume Two, Page Nos. 102 to 114
Rolled Lead Sheet – The Complete Manual, Page Nos. 89 to 101

- Spacing of drips depends on the code of lead specified.
- Consider minimum code 5 for gutters,
- Gutter bays code of lead sheet to specify will depend on design life of building exposure to wind and anticipated foot traffic.
See Detail Sheet No 1R
- Minimum fall recommended for gutters is 1 in 80. Consider designing at min 1 in 60 to accommodate variations on site.
- Clipping to free edges of cover flashings over upstands, See Detail Sheets 6R, 7R and 8R.
- Cavity brickwork ensure flashings are fitted in correct relation to any tray system, See Publication Reference.



BSEN12588 Code No.	Max.Length between drips mm	Max.overall girth mm
4	1500	750
5	2000	800
6	2250	850
7	2500	900
8	3000	1000

Lead Sheet Association
Telephone 01892 822773
Fax 01892 823003



Standard Detail Sheet No. 4G
Title Box Gutters (Tiled or Slated
Roofs)

Contract Information

Practice Details

Publication Reference:
Lead Sheet Manual Volume Two, Page Nos. 102 to 114
Rolled Lead Sheet – The Complete Manual, Page Nos. 17 to 22, 89 to 101.

NOTES

General

Drawings are indicative and to be developed in conjunction with/ approved by:

- Building Control Officer
- Local Authority Conservation Officer
- MEP Engineer
- Acoustic Engineer
- Fire Engineer
- Structural/ Drainage Engineer

Access to the roof is limited and roof condition and build-up to be confirmed

All products to be installed to manufacturer's requirements & Building Regulation compliance.
Product systems to be used where practicable

Drawings to be read in conjunction with:

- Donald Insall Associates Condition Report.
- Khan + Li Architects Drawings

Survey Information

- Drawings based on information from Khan + Li Architects only and all dimensions to be confirmed
- Timber survey to undertaken to establish integrity of key structural elements

Insulation

- Insulation specification to meet the requirements of Approved Doc L and B
- Insulation specification to be agreed with fire engineer

Floors

- Floor build-up to meet the requirements of Approved Doc E and be agreed and approved by acoustician
- Floor build-up to meet the requirements of Approved Doc B and be agreed and approved by fire engineer.
- Separating floors to achieve 60 minute fire protection; detail by others
- Servicing strategy to be developed with MEP engineer to maintain fire and acoustic separation

Windows

- Glazing specification to meet the requirements of Approved Docs L and E
- Opening lights to be agreed as part of ventilation strategy with MEP Engineer
- Window specification to agreed with Local Authority Conservation Officer

Roof

- Glazing specification to meet the requirements of Approved Doc L
- New roof coverings and rooflights to be agreed with Local Authority Conservation Officer
- Condition/ build-up of existing roof to be confirmed
- Access to valley gutters to be confirmed as part of access and maintenance strategy

Drainage

- Gutters and rainwater goods shown are indicative and to be developed in conjunction with structural engineer and wider drainage strategy
- Details to comply with the British Lead Sheet Association Details
- Temporary measures to be installed for water ingress prevention, until permanent elements are fitted

Notes

- 1 Any dwg format drawing is to be read in conjunction with and at the scale of the accompanying pdf.
- 2 Where colours other than black or grey are used, the drawing must be plotted in colour.
- 3 All drawings must be created using AutoCAD or a compatible software package. Dimensions are to be checked on site by the contractor, scaling is for Local Authority purposes only.
- 4 Unless otherwise indicated, all dimensions are in millimeters.
- 5 All information on this drawing is to be read in conjunction with the relevant DWG and the accompanying specification and trade contract drawings and information by specialists.
- 6 In the event of any discrepancy, please contact us immediately.
- 7 This drawing may contain survey information by others and is to be used solely for the purposes for which it was created.
- 8 These are uncontrolled documents issued for information purposes only. If you have any queries regarding the drawings, please contact DIA immediately.
- 9 Please note: DIA cannot be held responsible for any errors arising from changes made to an uncontrolled dwg file.

Drawing Status

- F Feasibility
- S Sketch Design
- P Planning
- B Building Control
- D Design Development
- M Measurement
- T Tender
- C Construction
- R Record

[illegible]

Donald Insall Associates
Chartered Architects and Historic Building Consultants

Bridgegate House, 5 Bridge Place
Chester CH1 1SA
(+44) 01244 350 063
chester@insall-architects.co.uk

Waterside House, Rochdale

MANWHWS01-DR-3306-3P-0-
Lead Sheet Association Details

Project MAN.WHWS.01	No 3306	
Scale (A3) 1: see drg	Status 3P	Revision 0

- Spacing of drips depends on the code of lead specified.
- Introduction of wood cored rolls is required where the overall girth is exceeded, See Table 7-8 .
- Consider minimum code 5 for gutters or roofs.
- Gutter bays code of lead sheet to specify will depend on design life of building exposure to wind and anticipated foot traffic.
See Detail Sheet No 1R
- Finished height of roll on the lower level should be not less than 5mm below the top edge of the drip on the upper level. See drawings 1G, 2G, 7G, 12R, 13R, 17R and 18R.
- Minimum fall recommended for gutters is 1 in 89. Consider designing at min 1 in 60 and accommodate variations on site.
- Splash laps on drips can only be omitted on gutter linings.
- Risk of moss and lichen growth on slates or tiles consider use of sacrificial flashings.
See Update No 2.

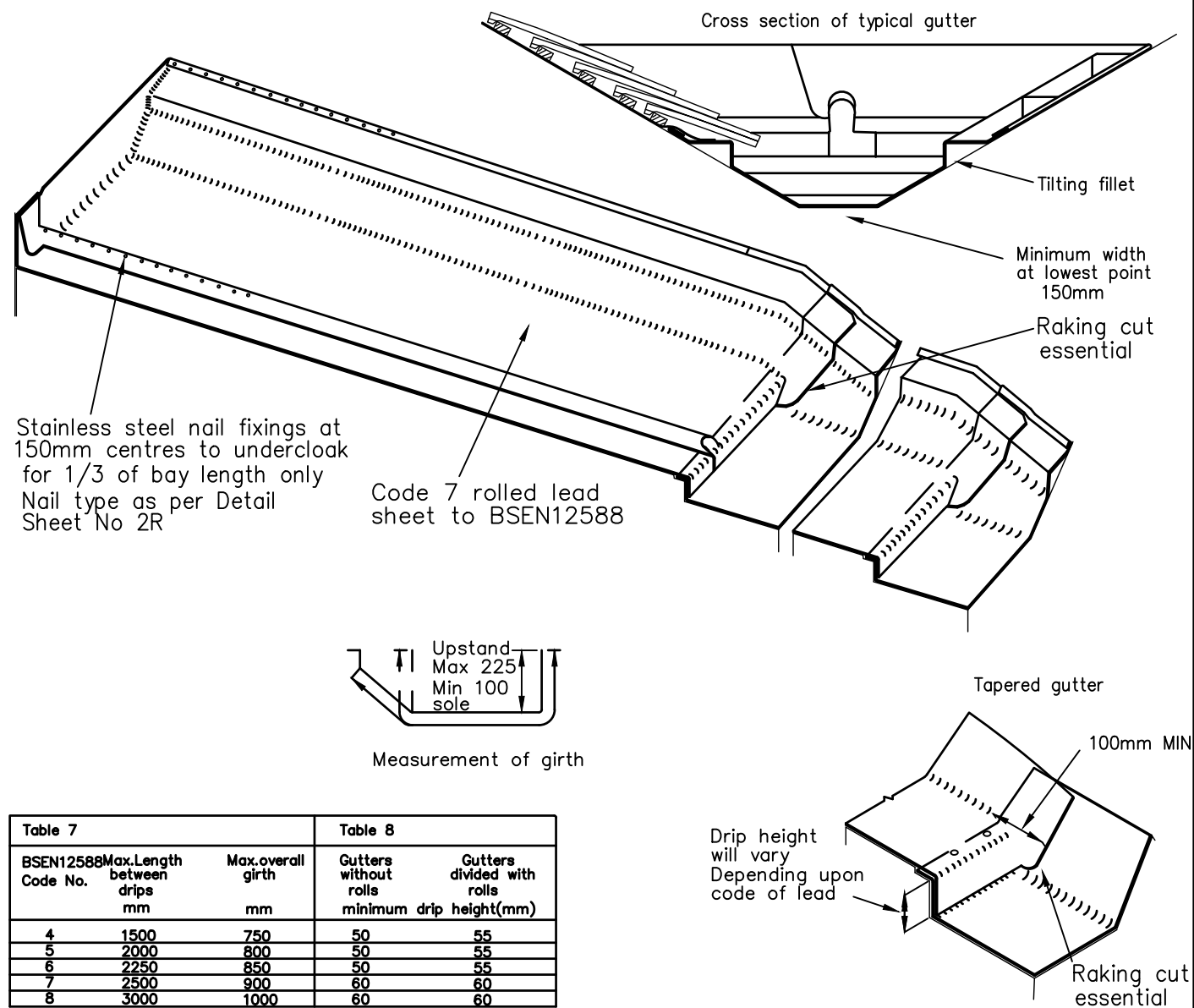


Table 7			Table 8	
BSEN12588 Code No.	Max.Length between drips mm	Max.overall girth mm	Gutters without rolls minimum	Gutters divided with rolls height(mm)
4	1500	750	50	55
5	2000	800	50	55
6	2250	850	50	55
7	2500	900	60	60
8	3000	1000	60	60

Lead Sheet Association
Telephone 01892 822773
Fax 01892 823003



Standard Detail Sheet No. 7G
Title Tapered Gutters

Contract
InformationPractice
Details

1 Any dwg format drawing is to be read in conjunction with and at the scale of the accompanying pdf.
2 Where colours other than black or grey are used, the drawing must be plotted in colour.
3 For status 'C' (Construction) drawings all dimensions are to be checked on site by the contractor,
4 scaling is for Local Authority purposes only. Dimensions are to be in millimetres.
5 All information on this drawing is to be read in conjunction with the relevant Donal Inall Associates
6 specification and trade contract documents. Dimensions are to be in millimetres.
7 In the event of any discrepancy, please contact us immediately.
8 This drawing may contain survey information by others and is to be used solely for the purposes for
9 which it was prepared.
10 These are uncontrolled documents issued for information purposes only. If you have any queries
11 regarding the drawings, please contact DIA immediately.
12 Please note DIA cannot be held responsible for any errors arising from drawings made to an
13 uncontrolled dwg file.

- F** Feasibility
- S** Sketch Design
- P** Planning
- B** Building Control
- D** Design Development
- M** Measurement
- T** Tender
- C** Construction
- R** Record

[illegible]

Donald Insall Associates
Chartered Architects and Historic Building Consultants

Bridgeway House, 5 Bridge Place
Chester CH1 1SA
(+44) 01244 350 063
chester@insall-architects.co.uk

Waterside House, Rochdale

MANWHWS01-DR-3306-3P-0-
Lead Sheet Association Details

Project MAN.WHWS.01	No 3306	
Scale (A3) 1: see drg	Status 3P	Revision 0

Soakers minimum code 3. Where thicker uneven natural slates, consider use of code 4.

Hip soakers are suitable for all roof pitches and should extend not less than 100mm on each side of the mitre plain or plain double-lap tiles or slated roof.

For roof pitches below 35° increase coverage to 150mm

Patination oil. Consider use to reduce risk of staining over slated or tiled areas.

or 4 rolled
n onsite of existing tile)
2588

150 min

Publication Reference:
Lead Sheet Manual Volume One, Page Nos. 42, 43
Rolled Lead Sheet – The Complete Manual, Page Nos. 60, 61

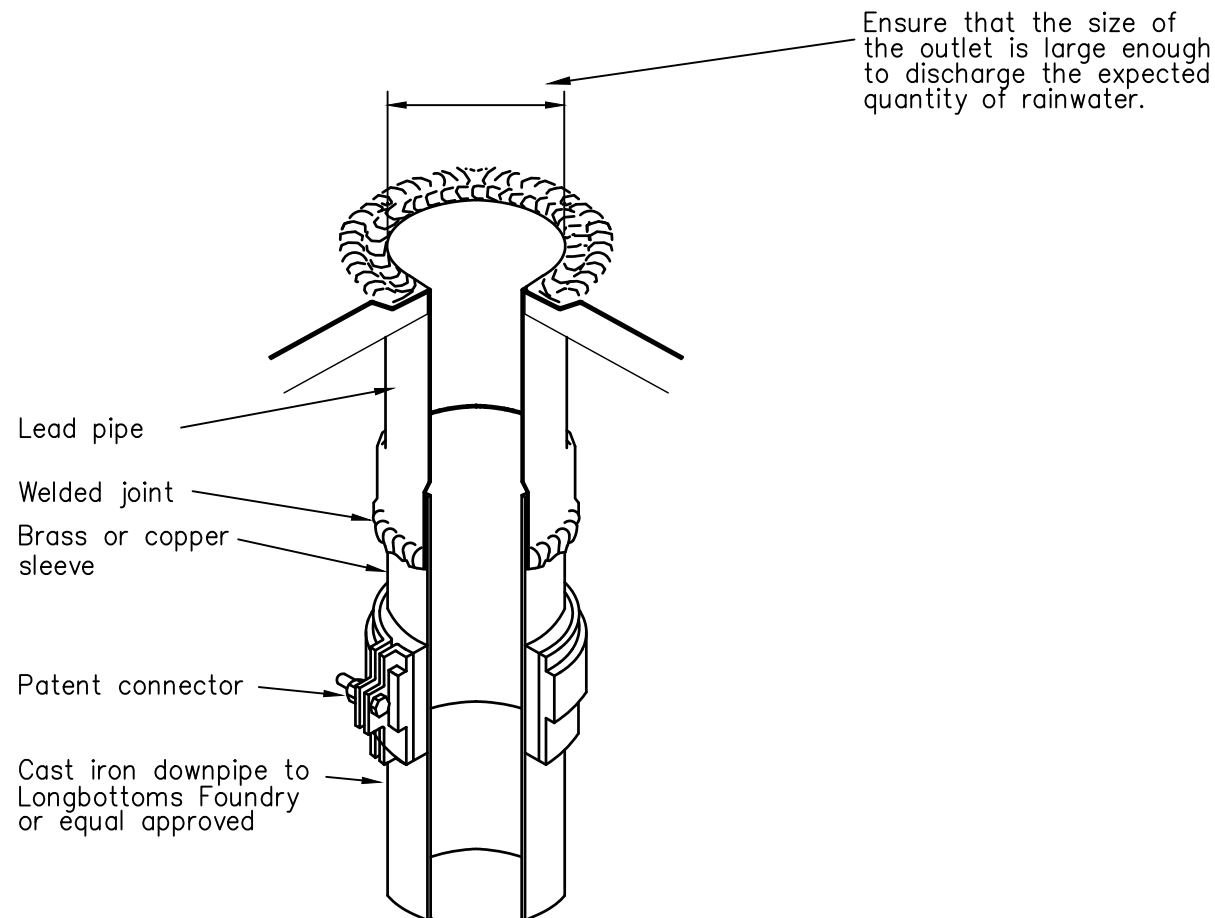
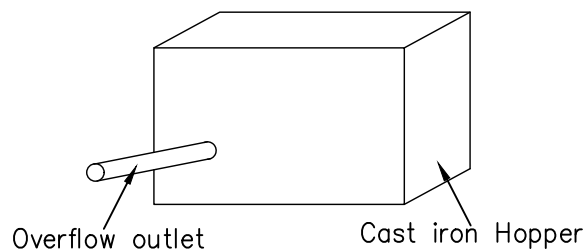
- Gutters and rainwater goods shown are indicative and to be developed in conjunction with structural engineer and wider drainage strategy
- Details to comply with the British Lead Sheet Association Details
- Temporary measures to be installed for water ingress prevention, until permanent elements are fitted

[illegible]

Where outlet connection is in a bay type as detail Sheet No 12G, consider forming as a funnel shape, ie 150mm to 100mm pipe.

Cast iron Hopper with outlet to be included, layout permitting. To Longbottoms Foundry or equal approved

Drawing is indicative only, profile tbc



Ensure that the size of the outlet is large enough to discharge the expected quantity of rainwater.

Lead Sheet Association
Telephone 01892 822773
Fax 01892 823003



Standard Detail Sheet No. 13G
Title Outlet Connections

Contract
Information

Practice Details

Publication Reference:
Lead Sheet Manual Volume Two, Page Nos. 102 to 114
Rolled Lead Sheet – The Complete Manual, Page Nos. 89 to 101

1 Any dwg format drawing is to be read in conjunction with and at the scale of the accompanying pdf.
2 Where colours other than black or grey are used, the drawing must be plotted in colour.
3 For status 'C' (Construction) drawings all dimensions are to be checked on site by the contractor,
4 scaling is for Local Authority purposes only. Dimensions are to be in millimetres unless otherwise indicated, all dimensions are in millimetres.
5 All information on this drawing is to be read in conjunction with the relevant Donal Insite Associates
6 specification and trade contract documents. All drawings are to be checked by the specialists.
7 In the event of any discrepancy, please contact us immediately.
8 This drawing may contain survey information by others and is to be used solely for the purposes for
9 which it was prepared.
10 These are uncontrolled documents issued for information purposes only. If you have any queries
11 regarding the drawings, please contact DIA immediately.
12 Please note DIA cannot be held responsible for any errors arising from drawings made to an
13 uncontrolled dwg file.

- F Feasibility
- S Sketch Design
- P Planning
- B Building Control
- D Design Development
- M Measurement
- T Tender
- C Construction
- R Record

[illegible]

General

Drawings are indicative and to be developed in conjunction with/ approved by:

- Building Control Officer
- Local Authority Conservation Officer
- MEP Engineer
- Acoustic Engineer
- Fire Engineer
- Structural/ Drainage Engineer

Access to the roof is limited and roof condition and build-up to be confirmed

All products to be installed to manufacturer's requirements & Building Regulation compliance.
Product systems to be used where practicable

Drawings to be read in conjunction with:

- Donald Insall Associates Condition Report.
- Khan + Li Architects Drawings

Survey Information

- Drawings based on information from Khan + Li Architects only and all dimensions to be confirmed
- Timber survey to undertaken to establish integrity of key structural elements

Insulation

- Insulation specification to meet the requirements of Approved Doc L and B
- Insulation specification to be agreed with fire engineer

Floors

- Floor build-up to meet the requirements of Approved Doc E and be agreed and approved by acoustician
- Floor build-up to meet the requirements of Approved Doc B and be agreed and approved by fire engineer.
- Separating floors to achieve 60 minute fire protection; detail by others
- Servicing strategy to be developed with MEP engineer to maintain fire and acoustic separation

Windows

- Glazing specification to meet the requirements of Approved Docs L and E
- Opening lights to be agreed as part of ventilation strategy with MEP Engineer
- Window specification to agreed with Local Authority Conservation Officer

Roof

- Glazing specification to meet the requirements of Approved Doc L
- New roof coverings and rooflights to be agreed with Local Authority Conservation Officer
- Condition/ build-up of existing roof to be confirmed
- Access to valley gutters to be confirmed as part of access and maintenance strategy

Drainage

- Gutters and rainwater goods shown are indicative and to be developed in conjunction with structural engineer and wider drainage strategy
- Details to comply with the British Lead Sheet Association Details
- Temporary measures to be installed for water ingress prevention, until permanent elements are fitted

© 2019 DONALD INSALL ASSOCIATES LTD

Donald Insall Associates
Chartered Architects and Historic Building Consultants

Bridgegate House, 5 Bridge Place
Chester CH1 1SA
(+44) 01244 350 063
chester@insall-architects.co.uk

Waterside House, Rochdale

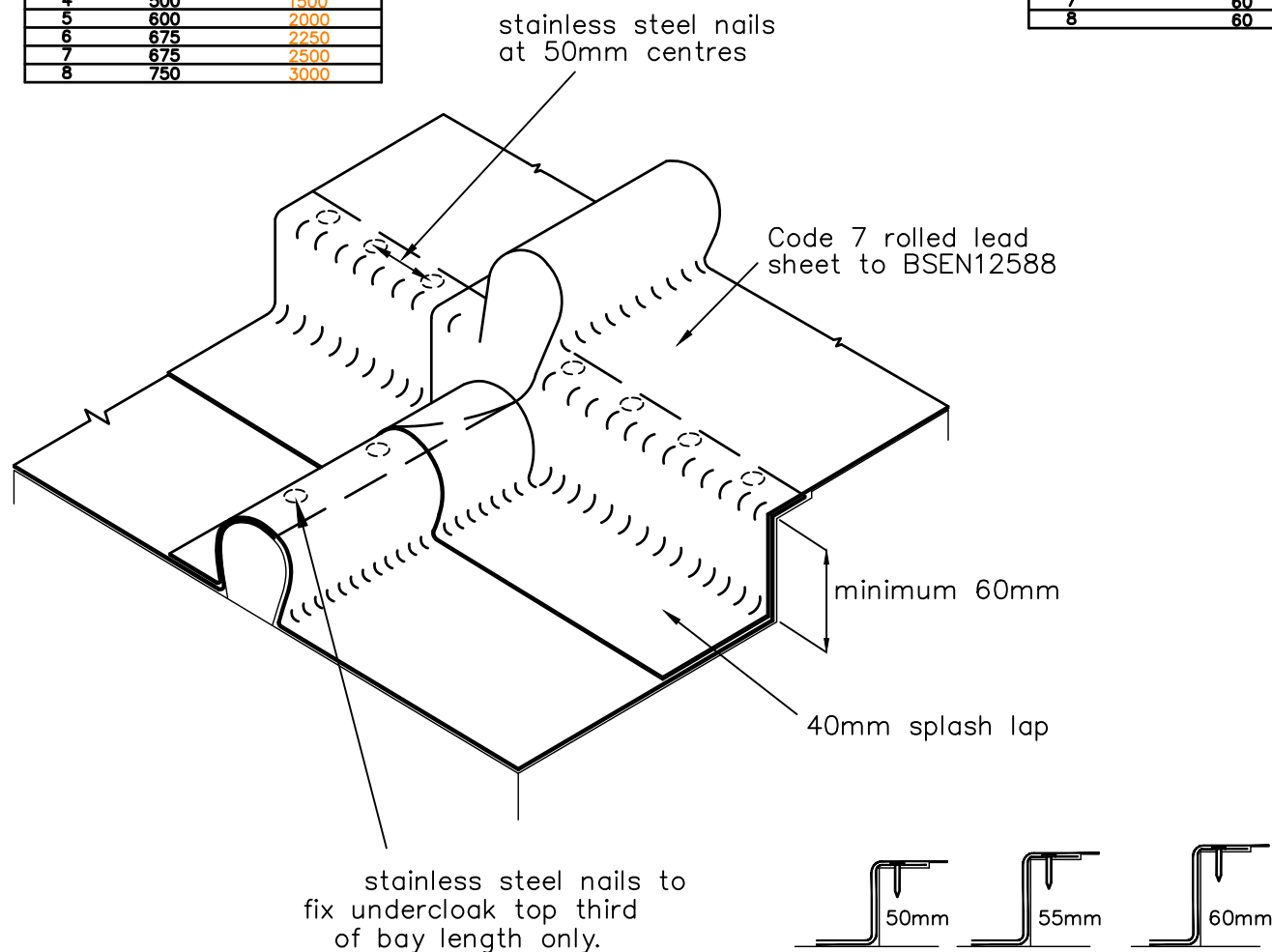
MANWHWS01-DR-3306-3P-0-
Lead Sheet Association Details

Project MAN.WHWS.01	No 3306	
Scale (A3) 1: see drg	Status 3P	Revision 0

- Roofing bays code of lead sheet to specify will depend on design life of building exposure to wind and anticipated foot traffic.
See Detail Sheet No 1R
- Finished height of roll on the lower level should be not less than 5mm below the top edge of the drip on the upper level. See drawings 1G, 2G, 7G, 12R, 13R, 17R and 18R.
- This detail is suitable for roof pitches between 1 in 80 and 3°.
- Minimum fall recommended is 1 in 80. Consider designing at min 1 in 60 to accommodate variations on site.

Table 3 Flat Roofs		
BSEN12588 Code No.	Max.spacing of joints with the fall mm	Max.spacing between drips mm
4	500	1500
5	600	2000
6	675	2250
7	675	2500
8	750	3000

BSEN12588 Code No.	Minimum drip height mm
4	55
5	55
6	55
7	60
8	60



Lead Sheet Association
Telephone 01892 822773
Fax 01892 823003



Standard Detail Sheet No. 13R
Title Roll upto drip
Intersection Rolls in Line

Contract
Information

Practice Details

Publication Reference:

Lead Sheet Manual Volume Two, Page Nos. 27, 28, 29, 45, 47, 51

Rolled Lead Sheet – The Complete Manual, Page Nos. 103, 104, 105, 119, 121, 125

NOTES

General

Drawings are indicative and to be developed in conjunction with/ approved by:

- Building Control Officer
- Local Authority Conservation Officer
- MEP Engineer
- Acoustic Engineer
- Fire Engineer
- Structural/ Drainage Engineer

Access to the roof is limited and roof condition and build-up to be confirmed

All products to be installed to manufacturer's requirements & Building Regulation compliance.
Product systems to be used where practicable

Drawings to be read in conjunction with:

- Donald Insall Associates Condition Report.
- Khan + Li Architects Drawings

Survey Information

- Drawings based on information from Khan + Li Architects only and all dimensions to be confirmed
- Timber survey to undertaken to establish integrity of key structural elements

Insulation

- Insulation specification to meet the requirements of Approved Doc L and B
- Insulation specification to be agreed with fire engineer

Floors

- Floor build-up to meet the requirements of Approved Doc E and be agreed and approved by acoustician
- Floor build-up to meet the requirements of Approved Doc B and be agreed and approved by fire engineer.
- Separating floors to achieve 60 minute fire protection; detail by others
- Servicing strategy to be developed with MEP engineer to maintain fire and acoustic separation

Windows

- Glazing specification to meet the requirements of Approved Docs L and E
- Opening lights to be agreed as part of ventilation strategy with MEP Engineer
- Window specification to agreed with Local Authority Conservation Officer

Roof

- Glazing specification to meet the requirements of Approved Doc L
- New roof coverings and rooflights to be agreed with Local Authority Conservation Officer
- Condition/ build-up of existing roof to be confirmed
- Access to valley gutters to be confirmed as part of access and maintenance strategy

Drainage

- Gutters and rainwater goods shown are indicative and to be developed in conjunction with structural engineer and wider drainage strategy
- Details to comply with the British Lead Sheet Association Details
- Temporary measures to be installed for water ingress prevention, until permanent elements are fitted

[illegible]

- Clips

The free edge of the lead flashing must always be 'adequately clipped' to prevent lifting and distortion in high wind conditions. Adequate clipping will depend on the location, orientation and exposure of the building and these, in turn will determine the material used for the clips, their spacing and, most important, the method of fixing. Clips should be spaced at between 300 and 500mm centres depending on exposure. For sheltered exposures clips fixed at the top (as in Fig.1) with a clip at each lap joint and at about 500mm centres will be adequate. However in more exposed situations, this method will not prevent wind lift in storm conditions and additional restraint will be needed. The important principle: 'The lower the fixing the stronger the clips' is illustrated in Fig.3. A typical example of extra fixings to clips are shown in Fig.2. Therefore, although the spacing and the material used are important, the method of fixing is an essential factor to be considered if the clips are to provide effective resistance to wind lift in storm conditions.

In rainy or damp conditions new lead sheet flashings will produce an initial, uneven white carbonate on the surface. This can be aesthetically unacceptable in some situations but, more importantly, the white carbonate can be washed off by rain to cause unsightly staining on materials below flashings. To reduce staining and also provide a pleasing appearance, a coat of Patination Oil should be applied to the flashings as soon as practical after fixing. Preferably the oil should be applied no later than the end of the day's work since overnight rain can cause the white stain to develop. Patination Oil should be applied evenly with a soft cloth and, in vulnerable locations such as mansard flashings, fixed over dark grey slates or tiles, it is important to oil

- Clips—copper
Copper or tinned copper clips should be not less than 50mm wide. The thickness will depend on the exposure of the building. Normally 0.6mm thick tinned copper sheet (0.7 copper) should be specified.

These should be cut from austenitic stainless steel sheet or strip not less than 50mm wide and 0.38mm thick. However, for high exposure situations a thicker sheet (0.46 stainless steel) should be used.

Lead is only suitable for clips in sheltered locations and the thickness of the sheet used should not be less than the thickness of the flashing.

Nails should be large headed copper or austenitic stainless steel, with an annular ring, helical ring or shank not less than 19mm long. The shank diameter of copper nails should not be less than 3.35mm or, for stainless steel, not less than 2.65mm.

Screws should be brass or stainless steel complying with BS1210, not less than 19mm long and 3.35mm in diameter.

Fig.1 Lead, copper or stainless steel clips turned over top of tile

Fig.2 Copper or stainless steel clips with lower fixing

Fig.3 Wedges

Soft copper

Fulcrum

Pointing

Fixings - Wedges

Lead wedges. These are simply strips of lead sheet 20-25mm wide, folded several times to suit the thickness of the joint.

[illegible]

All products to be installed to manufacturer's requirements & Building Regulation compliance.
Product systems to be used where practicable

- Donald Insall Associates Condition Report.
- Khan + Li Architects Drawings

- Drawings based on information from Khan + Li Architects only and all dimensions to be confirmed
- Timber survey to undertaken to establish integrity of key structural elements

- Insulation specification to meet the requirements of Approved Doc L and B
- Insulation specification to be agreed with fire engineer

- Floor build-up to meet the requirements of Approved Doc E and be agreed and approved by acoustician
- Floor build-up to meet the requirements of Approved Doc B and be agreed and approved by fire engineer.
- Separating floors to achieve 60 minute fire protection; detail by others
- Servicing strategy to be developed with MEP engineer to maintain fire and acoustic separation

- Glazing specification to meet the requirements of Approved Docs L and E
- Opening lights to be agreed as part of ventilation strategy with MEP Engineer
- Window specification to agreed with Local Authority Conservation Officer

- Glazing specification to meet the requirements of Approved Doc L
- New roof coverings and rooflights to be agreed with Local Authority Conservation Officer
- Condition/ build-up of existing roof to be confirmed
- Access to valley gutters to be confirmed as part of access and maintenance strategy

- Gutters and rainwater goods shown are indicative and to be developed in conjunction with structural engineer and wider drainage strategy
- Details to comply with the British Lead Sheet Association Details
- Temporary measures to be installed for water ingress prevention, until permanent elements are fitted

→ Ventilation gap – refer to British Standards

For roof pitches between 3° and 10° sealed head fixings and cover flashings are required.

Finish 5mm
above roll

For Flashing
over tiles or
slates See Detail
Sheets No 7F, 8F

Standard Detail Sheet No. 30R
Title Ventilation Details

Practice Details

Lead Sheet Manual Volume Three, Page Nos. 61 to 63
 Rolled Lead Sheet – The Complete Manual, Page Nos. 5, 6, 200, 201

Notes										
	Any dwg format drawing is to be read in conjunction with and at the scale of the accompanying pdf.									
	Where colours other than black or grey are used, the drawing must be plotted in colour.									
	For status 'C' (Construction) drawings all dimensions are to be checked on site by the contractor, scaling is for Local Authority purposes only.									
	Unless otherwise indicated, all dimensions are in millimeters.									
	All information on this drawing is to be read in conjunction with the relevant Donald Insall Associates specification and trade contractors' drawings and information by specialists.									
Drawing Status	In the event of any discrepancy, please contact us immediately.									
	This drawing may contain survey information by others and is to be used solely for the purposes for which it was issued.									
	These are uncontrolled documents issued for information purposes only. If you have any queries regarding the drawings, please contact DIA immediately.									
	Please note DIA cannot be held responsible for any errors arising from changes made to an uncontrolled dwg file.									
	© 2019 DONALD INSALL ASSOCIATES LTD									
F Feasibility										
S Sketch Design										
P Planning										
B Building Control										
D Design Development										
M Measurement										
T Tender										
C Construction										
R Record										
						0	29-03-23	SRS	ARF	Initial Issue
Rev	Date	Dwn	Auth	Revision		Rev	Date	Dwn	Auth	Revision