

Ashzip™ Method Statement

For site roll-forming at Ground & Eaves level



Introduction

This method statement is to be read in conjunction with all relevant site drawings, machine/equipment instructions, instruction drawings, other operation method statements and health and safety risk assessments. It is intended as a guide to what is expected of the installing contractor when we produce material on site.

The document does not cover production from a dimensional point of view. Dimensional tolerances are as per the Ash & Lacy Ashzip Assessment of Production Quality plan document. Reference S143847 PQP

When handling Ashzip all site operatives must wear suitable PPE. The method statement is for ground rolling and eaves level rolling.

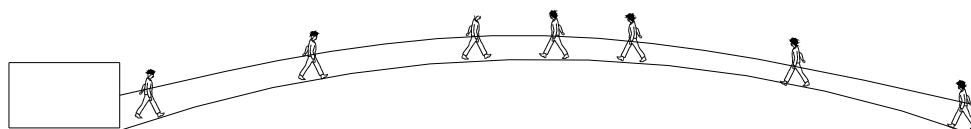
Before site rolling can begin certain parameters must be met on site. The following notes also relate to ground level rolling. These are as follows:

1. A flat, even hard standing surface (free from standing water) is required. Minimum areas are to be provided to ensure safe operation can occur. The minimum required area is 10m wide x 18m long. An additional area for sheet run out will be required along with coil storage and fork lift access for coil handling.

The sheet run out area must be equal to the length of sheet + 2m (room for manoeuvring).
2. A secure compound area will be required for coil storage. The size of this area will be dependant on the size of the project. For example for a 16000m² project an area of 15x6m would be required to store **all** of the coils. Any loss or theft of Ash & Lacy materials or equipment due to poor storage facilities will result in the installing contractor being charged for such losses.

Any area provided for storage of coil must drain well, be free from any standing water or mud, any contact between any of these and the coil will cause damage to the coil.
3. Access to site is the responsibility of the roofing contractor and must be arranged in conjunction with the main contractor.
4. **Normal site working hours for our operatives are 8:00am to 4:30pm** Monday to Friday. Additional cost may be charged to the roofing contractor for hours outside of these.
5. Sufficient labour must be provided by the roofing contractor to carry sheets off the end of the MRU. We will only provide labour to operate our machine. To carry the sheets without the risk of creasing or other damage the contractor will require 1 man per 6m (at ground and for eaves rolling) and on a curved roof 2 men at the ridge. A further 2 men should be provided to allow for continuous sheet running whilst the previous sheet is walked into position. Again this is for stacking packs on the ground or at eaves level.

If rolling at eaves or ground - example a 30m sheet roof would be calculated by $30/6 + 1 + 1$ for the ridge = 7men to carry the sheets. Allow for two further operatives to support the following sheet whilst the previous is walked into position. (For Steel sheets allow 1 man every 4-5m). The sketch below is also applicable where straight/flat sheets are used and run at ground level.



- 6 Skip facilities are to be provided by the roofing contractor for Ash & Lacy Building Systems to use to dispose of packaging and wastage (this should be budgeted by the contractor and contra charges will not be accepted for this against Ash & Lacy's final Invoice).
- 7 Unrestricted access to a 4.5 tonne rough terrain fork truck is to be provided/hired by the roofing contractor for loading of materials. (this should be budgeted by the contractor and contra charges will not be accepted for this against Ash & Lacy's final Invoice).
- 8 Where sheets are to be run and then stored on the roof in packs, the project engineer must be informed to ensure that the structure will take the additional loading. It is preferable that the MRU and frame will be positioned above a main rafter.
- 9 If Ashgrid bar and bracket spacers are being used to form a cavity, anti-sway brackets must also be used when loading out. This is as follows:-
 - One at each end of run of bar
 - One at loading out positions
- 10 The roof must be fully lined out prior to the MRU arriving on site.

The Roll former restraint frame must be fixed into position by the roofing contractor prior the equipment arriving on site.

Note: The frame is fixed through the liner into the supporting structure below or into the Ashgrid spacer. In the area where the framework is to be positioned the halters are to be removed to allow connection.



- 11 **Consultation should be sought from the crane hire company by the roofing contractor to ensure site access and restrictions are considered.** The size of crane must be determined by the roofing contractor in conjunction with the crane hire company.
- 12 Note: When rolling at eaves the restraint framework must be in position before the mobile roll forming unit can be placed at eaves level. Our operatives are instructed to work on the basis of **NO FRAME NO ROLLING.**
- 11 13 The installing contractor must arrange for the offloading and loading back on to a trailer, of the roll forming unit. This applied to ground rolling. (this should be budgeted by the contractor and contra charges will not be accepted for this against Ash & Lacy's final Invoice).
- 14 **The roll former cannot be left on the trailer when rolling at ground level**

MRU Construction and lifting equipment

Lifting the MRU into position (ground or eaves)

Lifting Equipment – ID no 20861 S1

The MRU is lifted by 16mm Ø 4 leg Sysma grade 8 chain slings 5m long B to B with each leg terminate with 6.5t alloy bow shackles with a type E pin sling complete with shortening clutches. Tare weight of 160kg. The components stated in this paragraph are inspected and tested as one unit and classed as one working component. The safe working load of this component is 17t @ 45° when the chains are fully loaded from the lifting eyes.

Framework around MRU – ID no 2059-9

What the frame is carrying

Special purpose lifting frame, constructed from 152mm x152mmn UC having 4 shackle lifting lugs, one welded at each top corner of the frame. Framework general dimensions being 7550mm overall length, 2750mm wide, 2900mm overall height. The members stated in this paragraph are designed and tested as one unit. With a safe working load of 12t. The total weight of the loaded MRU is 9.3t + 2t maximum coil weight.

Restraint weights & chains – ID nos A317417 & A317396

Wherever possible restraint weights are to be used which are tied to the bottom eyes of the container with 6m long chains. This component is not necessary for the safe operation of the MRU and is only incorporated as a matter of good practice. The chains are as stated 6m long but wherever required extensions are available. These chains have a SWL of 1t although as they are positioned on the ground they will not be carrying such a load.

Certificates of inspection for the above mentioned components are kept within the container for inspection upon arrival on site.

What the crane must lift to roof level

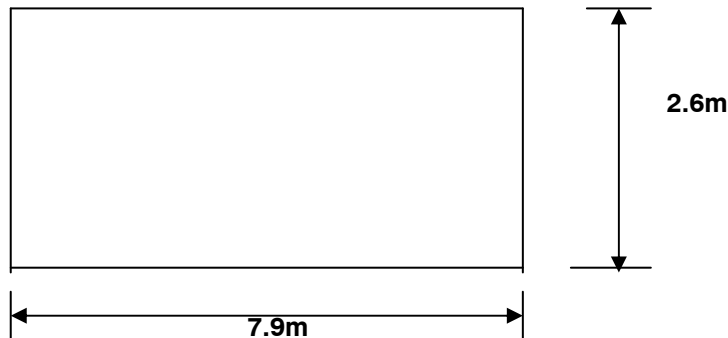
1. A crane will be provided by the roofing contractor to lift the 11.2t (inc frame) + 2t coil = 13.2t (allow 14.5t weight in total) This takes into account friction caused by weighting blocks. The crane will then lift the MRU into position, if rolling at eaves over the restraint frame which will have already been fixed into place by the roofing contractor for eaves level rolling. The MRU is to be lowered into position but **not** rested on the frame. **The MRU must not be moved horizontally into position, it must be lowered from above to allow safe and proper alignment without damaging the restraint frame.** The crane must have sufficient reach and jib length. The frame is only to provide restraint against adverse movement caused by strong gusts of wind, also the front bottom eyes of the MRU are tied back to the frame for additional stability. This is shown under Analysis of Side Loading to Suspended Rolling Cab below. **The roofing contractor must also provide or arrange a suitable Banksman who is responsible for all connection of lifting equipment and supervision of lifting operations.**
2. Herras, or similar high visibility fencing is to be provided by the roof contractor in conjunction with the main contractor to form a restricted access area which is only to be used by our site operatives. The scaffold should be adequately closed off and guardrails positioned around the edges of the machine where the scaffold walkway ends.

- 3 An 80 tonne crane should be considered as a minimum. For projects where an extended reach is needed a larger crane may be required.

Note – this is not a recommendation of crane size. This is to be determined via site inspection by the installers nominated crane company

Analysis of Side Loading to Suspended MRU

Information received from a typical crane hire company gives a maximum wind speed for safe crane operation of 24mph which equates to 11m/s, referring to BS6399: Part 2: 1997, the calculated wind force acting on the rolling cab side elevation is 0.4kN/m² based on a suspended height of 10m.



Rolling Cab Side Elevations

Total wind load acting on the rolling cab side elevation is $0.4 \times 7.9 \times 2.6 = 8.2\text{kN}$.
The force resisting this wind load is: -

$$F = \mu R$$

Where R is the reaction, which in this case is the weight of the rolling cab of 10 tonnes.
 μ is the coefficient of friction; a value of 1.0 is equivalent to the cab sitting on a rough concrete floor and a value of 0 allows continuous movement with no force.
Taking a value of say 1% of full friction due to tension of chains, the resistance force becomes

$$F = 0.01 \times 1000\text{kN} = 10\text{kN} > 8.2\text{kN wind force.}$$

By inspection, it appears the self weight of the cab will resist the wind force and will remain stable, however, our framing guide when fixed to the purlins over the rafter back will resist side movement due to natural twist of chains and vibration from rolling machinery.

In practice roofing operatives will have been brought down from the roof before wind speeds become unsafe for the crane to work.

Mobile Rollforming Unit Details

Container no: 1 & 2

Container ID no: MLCU 01

Manufactured: Originally 05/90

Reinforcements and modifications to take Roll former: 05/03

Next survey due: N/A up to date certification is within the container for inspections

Gross laden Weight: 13.2t (14.5t including friction caused by weighting blocks)

Power: The MRU is powered by remote generator provided by ourselves. This is detailed further on (415 volts). The MRU runs on a compatible voltage to the generator and the details provided further on. All cables are suitable strength and quality and inspected for use on site.

UNDER NO CIRCUMSTANCES MAY A PERSON FROM ANOTHER SITE OPERATION ENTER THE ROLL FORMING CABIN. NOR CAN ANY TOOLS WITHIN THE CABIN CAN BE USED BY A MEMBER OF ANOTHER SITE OPERATION.

Notes:

1. The crane is to be provided by the roofing contractor. Advice Should be sought by the roofing contractor from the crane company before a crane is ordered. (See previous notes).
2. The MRU will be positioned and located within the restraint framework provided. The restraint framework which is fixed through the liner profile into the supporting structure. The container is not placed on the framework as the frame is there to prevent lateral movement.
3. When the MRU and restraint framework is positioned at the eaves it should be positioned over the rafter position for additional stability when ever possible.
4. Where the MRU overhangs or lands onto the leading edge of the roof, a recess in the scaffold handrail must be incorporated to end the footpath when the roll former is in place. The handrail where the MRU is to be positioned must also be removed when the cabin is placed. This should be arranged by the roofing contractor with the main contractor. (On tight radii roofs this may not be required as the container may be above this level.

Any changes to scaffold and positioning of support rails must be in accordance with relevant safety guidelines and is determined by the roofing contractor.

Operating the machine

Name of operative

Chris Griffiths

Dave Galvin

Pete Hand

Other to be advised....

Position within company

Production Manager & Foreman

Production Supervisor

Production Supervisor

Programming the MRU

Sheet lengths can be programmed into the machine by two means. Either at ground level within the cabin, or alternatively when the cabin is at eaves level using a remote control panel outside of the MRU (up to approximately 10m from machine). Intermittent access into the machine during rolling at eaves will be required.

Changing and loading coil

When the coil runs out or needs to be changed the MRU will be lowered to ground level and the coil will be changed and then the MRU is lifted back into position. The rear doors on the machine where the coil is to be loaded will be locked from the outside to prevent an exit point whilst the cabin is at the eaves.

The side doors will also be locked from the outside.

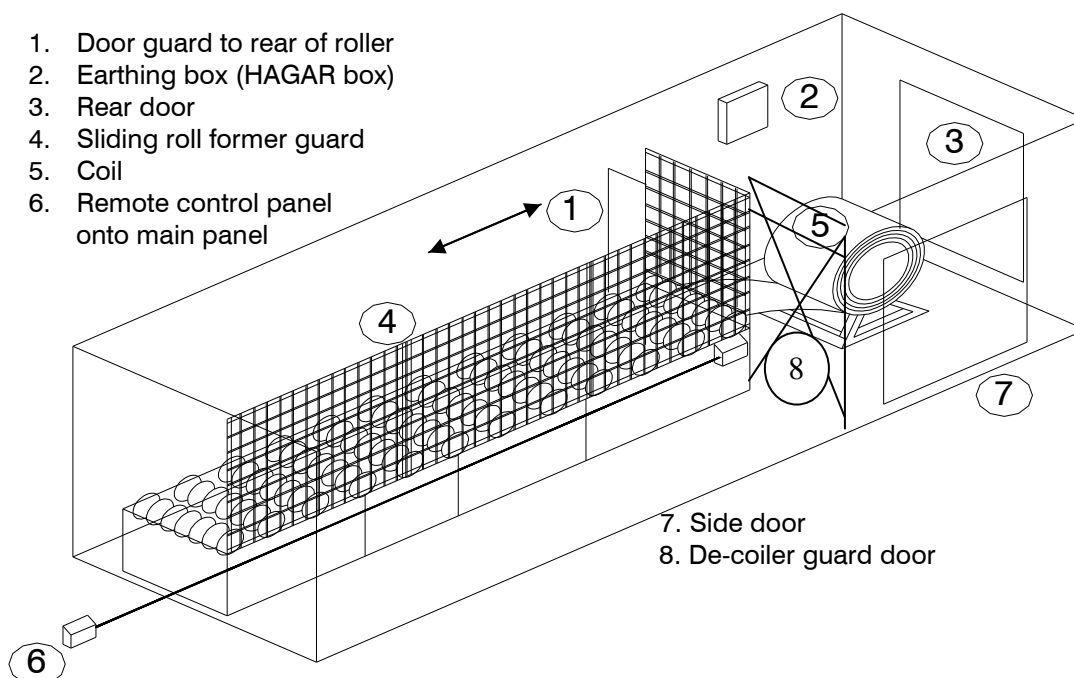
Refer to the above mentioned drawings and notes for area required at ground level for loading coil.

Access into the MRU during manufacture

Operatives in general will not enter the MRU, but in certain circumstances they may need to enter whilst the machine is rolling. This is due to coil manufacturing process and coil delivery, the coil can in some cases birdsmouth or be slightly over width and snag on the de-coiler. In such cases entry into the machine is unavoidable. However, a guard door is in place to ensure that access is restricted to the de-coiler.

The roll former will need to be lubricated during manufacture. 99% of the time this is done automatically by a rig inside the machine. In some cases where the coil is 'dry' manual lubrication may have to take place but in most cases this is not necessary.

Safety Guards within the MRU



Earthing

Both the generator and the MRU must be earthed. A suitable method of earthing will be determined on site by the Ash & Lacy Production Manager. The installing contractor to ensure that this meets with site specific conditions and main contractors health & safety requirements and method statement.

Power Generator

Note: This is a typical generator specification, a different generator may be used. In all such cases the Generator will be supplied and operated on the same basis as set out below.

Supplier: LCH Generators (or equal approved)

Model: XD27 (or similar)

Specification:-

KVA(Kw)	Engine	Alternator	Noise Levels		Fuel tank capacity Litres (US Gal)	Consumption		Running time (Hrs)	
			LWA	dBA @ 7m		Ltrs/hr (US Gal/hr) 50 Hz	60Hz	50Hz	60Hz
27 (21.6)	3.1524	LL1014S	92	61	232 (61.3)	7.6(2.0)	8.6(2.30)	27	24

NOTE: UNDER NO CIRCUMSTANCES MAY AN OPERATIVE FROM ANOTHER SITE OPERATION WHETHER IT BE THE ROOFING OR MAIN CONTRACTOR USE OR BORROW THIS GENERATOR FOR OTHER WORKS.

Operational checks

Before use the operator must do the following checks and procedures.

1. Check oil levels and replenish using SAE 15/W40 or equivalent
2. Check the fuel level and use water free Diesel/Derv/Gas oil to BS2869
3. Check coolant level
4. Check air filter. In dusty areas this must be cleaned regularly
5. Visually check drive belts
6. Check all meters and gauges are functional
7. Check for leaks
8. Check engine oil and pressure are within limits
9. Ensure generator is not past service date (refer to next service figure on machine and compare to hour counter – machine serviced on number of hours used).

Fault finding on site procedure

Engine does not crank – Check emergency stop buttons on the control panel and on the outside of the canopy are released. Check battery voltage. Check no fault lamps lit.

Engine cranks but does not fire – Check fuel level. check emergency stop push buttons are out.

Engine stops due to high temp – Check generator not overloaded and check airflow not restricted.

Engine stops due to low pressure – Check and top up engine oil . If fault persists call out LCH generators service dept. – 24 hr call out.

No Voltage output – Check voltage with voltmeter. Check that the circuit breaker is in the on position. Check that the cable terminal box is closed and the catch is on (if open the circuit breaker will trip). Check no fault lamps are lit.

Black engine smoke or loss of power/speed – Check air filters are clean. Check fuel filters and air level. Check that the generator is not being overloaded.

Engine slows down when load is applies – This is normal unless it slows down to less than 49Hz (for 50Hz operation) or 59 (for 60Hz operation).

Operation

Name of operative	Position within company
--------------------------	--------------------------------

Chris Griffiths	Production Forman
Dave Galvin	Production Supervisor
Pete Hand	Production Supervisor
Other to be advised....	

1. Before starting the generator check lubrication oil and coolant level. (Do not remove the radiator cap when the engine is hot).
2. Ensure the generator circuit breaker is switched off.
3. Follow all further start up instructions
4. Check for abnormal noise once started or for abnormal vibration
5. Check control panel readings at regular intervals
6. **TO STOP GENERATOR** – Open circuit breaker by moving the handle to point downwards to position **0**.
7. Allow generator to run for 2 minutes to cool down and then turn selector switch to off.

Health and safety Notes

1. The generator must be operated by a competent and experienced person. (See listed above).
2. Use lifting points provided (these are covered by LCH's inspection and maintenance manuals with regards to LOLER) check before lifting that attachment to the chassis is satisfactory. Inspect connection points for damage that may have occurred during transportation.
3. Position the generator away from any flammable liquids.
4. Check all guards are secure. Generator not to be used if any guards are defective or missing.
5. Exhaust position to be facing away from any area of work wherever possible.
6. The roofing contractor is to inform the main contractor that there are hot exhaust pipes from the generator. The roofing contractor and main contractor should inform all operatives of this risk and reference should be made in any site risk assessment.
7. Earthing as required by supplier instructions.

8. Any servicing or electrical repair work to be carried out by a suitable LCH approved operative.
9. Operatives to wear protective gloves and clothing when handling fuels.
10. The machine can be operated remotely and can start up at any time. A warning to this effect is clearly displayed on the control panel of the machine. Reference should be made to this in the roofing contractors method statement and risk assessment.

Generator – other notes

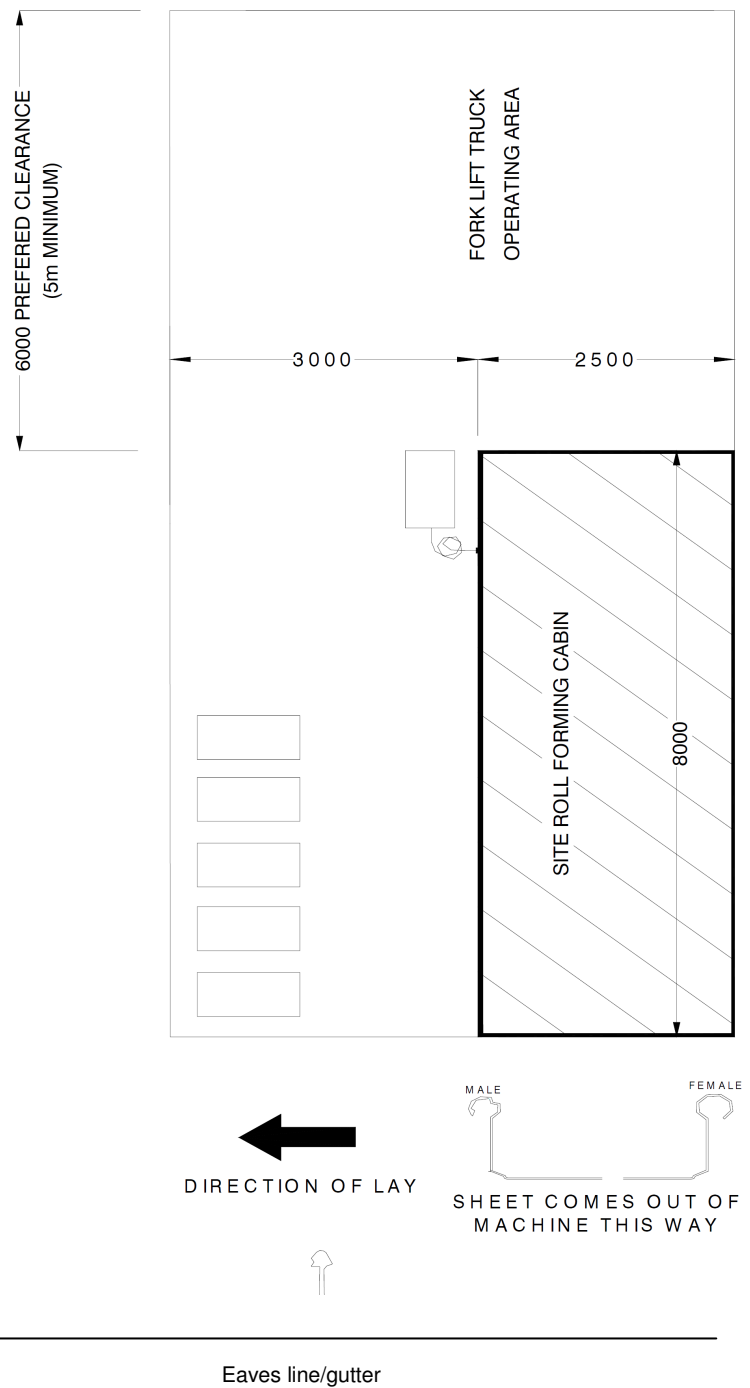
The machine is serviced after a set number of operating hours. This is clearly written on the machine and a second counter is incorporated in the machine to prevent the number being changed.

Refer to figure or inspection and maintenance certificate to confirm generator adequate for use.

For further assistance or clarification of any part of this document please refer to our technical department.

Direction of production/lay

The direction of production/lay is as per the detail below. However this document is relative to site production and not installation. The contractor should have referred to the Ashzip installation guide before this point.



Risk Assessment

Ash & Lacy may only have limited site access prior to commencing work on site. It is the roofing contractor and the main contractors responsibility to ensure that any special site risks and regulations are pointed out prior to commencement of works through a site induction.

The production works should be reviewed against a detailed roofing contractors method statement.

GENERAL NOTES:

Ash & Lacy can, if requested, visit site to check suitability. We reserve the right to refuse to produce sheets on site if during this visit or when we return to site our production manager feels that working on site will be unsafe. Site conditions must allow for enough safe operating space and suitable ground conditions to take the weight of a crane whether production takes place at eaves level or at ground level. Enough labour as detailed in this method statement must be provided by the roofing contractor.

Ash & Lacy reserves the right to remove roll forming equipment from site if delays to other site or factory production is delayed by either the roofing contractor providing insufficient labour. Roofing contractor not being ready to receive equipment and causing delays in production. Adverse weather conditions.

All site works are carried out in accordance with Ash & Lacy's standard terms and conditions.

Head Office, West Bromwich

Ash & Lacy Building Systems
Bromford Lane
West Bromwich
West Midlands
B70 7JJ
Tel: +44 (0) 121 525 1444
Fax: +44 (0) 121 525 3444 E-mail: sales@ashandlacy.com

Glasgow Branch

Ash & Lacy Building Systems
Unit 4A, Albion Trading Estate
750 South Street
Glasgow
G14 0SY
Tel: +44 (0) 141 950 6040
Fax: +44 (0) 141 950 6080

London Branch

Ash & Lacy Building Systems
Gateway 3, Davis Road
Off Cox Lane
Chessington
Surrey
KT9 1TD
Tel: +44 (0) 20 8391 9700
Fax: +44 (0) 20 8391 9701