Proposed Alterations to the ground floor, northern frontage of

The Great Northern Warehouse

Deansgate

Manchester

M3 4EN

PLANNING AND BUILDING CONTROL
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Draft Method Statement for the demolition of

Existing Aluminium framed glazed screens and erection of new Structural Glass Assemblies

Issued as a supplemental document to a Listed Building Consent application

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Contents

1.0 Introduction and Objectives

2.0 General Methodology for strip out and demolition

3.0 Specific Methodology for strip out and demolition

4.0 Methodology for erection of structural glass assemblies and secondary steel supports

5.0 Drawings List

1.0 Introduction and Objectives

This method statement has been prepared to support an Application for Listed Building Consent to Manchester City Council for the demolition of existing aluminium and timber framed entrance screens along the ground floor frontage of the Grade 2 Star Listed former Warehouse and replacement with structural glass assemblies. No other use is intended or envisaged.

The Great Northern Warehouse was built in 1898 as a goods station and warehouse for the Great Northern Railway. The warehouse was listed in 1979. After closure as a warehouse it was underused or vacant until the late 1990s when it was refurbished for mixed uses, with parking on upper floors and leisure on the lower floors. The viaducts and ramps were demolished in 2000, when a large addition, designed by Leslie Jones architects, was built to the south, with new ramps to the car park levels.

Objectives

The intention is to create a unified frontage using a series of standard elements within each opening, whist at the same time allowing for the individual expression of a potential occupiers brand or identity.

Given the range of conditions that exist and trying to acknowledge & balance the commercial imperative to maximise lettable space with an appropriate intervention into the Listed Building, it is intended to use the existing beam of the first brick barrel vault back from the rear of the brick piers as a line for all new entrance screens on this elevation.

This line avoids conflicts with the range of conditions which exist across the five openings; this line also allows something of the construction of the building to public realm. It doesn't extend so far back as to significantly reduce lettable space....neither does it create external areas that need additional measures to avoid misuse by the public. The chosen line is consistent with the basic orthogonal grid of the building.

The structural glass assembly described in this Method Statement is a specialist installation and it is intended that a more detailed method statement be produced by specialist demolition contractors and specialist glass fabricators. This Method Statement is therefore draft only.

2.0 General Methodology for strip out and demolition

This document covers issues connected with the physical demolition of existing aluminium and timber glazed screens and their replacement with structural glass assemblies. This document does not deal with the following issues:

Legislation and Codes of Practice matters
Health and Safety matters
Working hours
Welfare
Pre commencement issues

Areas not subject to strip out or demolition are to be carefully protected using a mix of boards and sheeting, the extent of which will be proposed by the main contractor and demolition subcontractor.

3.0 Specific Methodology for strip out and demolition

Existing aluminium and timber screens will be removed on an opening by opening basis, in a phased manner.

Hoardings will be erected around each opening where a screen is to be demolished. The hoardings will be erected in agreed external and internal locations and be of sufficient height and width to extend across the whole of the area being demolished, providing adequate protection to the public and sufficient working space for the contractor.

Screens appear to be fixed to the existing fabric of the Listed building at ground slab and jamb in all openings using standard "frame fixings", substantial bolts fixed through the frame member into masonry and concrete slab into pre drilled and plugged holes.

The head fixing is by means of angle brackets bolted to the brick vault over at each vertical frame member.

Prior to dismantling of the frames, the existing fabric of the listed building will be protected in an agreed manner using plywood boards and "visqueen" sheeting.

The existing frames will be dismantled using a range of hand tools including screwdrivers, spanners, pinch bars and the like.

The likely method of dismantling the frames will be as follows:

Remove aluminium capping section from the front of the frame

Remove glazing gaskets from front and rear of the glass panels

Carefully remove glass panels and cart away

Unbolt fixings connecting vertical frames to brick vaults using spanners and screwdrivers

Unbolt ground fixing of vertical frames and connection with transoms using spanners and screwdrivers

Remove transoms and cart away

Remove cill sections fixed to concrete ground slab using spanners and screwdrivers and cart away

Remove jamb sections fixed to piers using spanners and screwdrivers and cart away

Repair drill holes in brick vaults using an agreed epoxy based brick filler matched to existing brick using brick dust

Repair drill holes in brick piers using an agreed epoxy based brick filler matched to existing brick using brick dust

Replace any cracked bricks with imported reclaimed bricks to match existing.

4.0 Methodology for erection of structural glass assemblies and secondary steel supports

There are three types of structural glass glazing methods, suspended, stacked and structural stand-off systems. Designed for glazing large openings in buildings, where openings require multi tiers or levels of glass to glass panels, self supporting structural glass walls are required. These systems provide maximum visibility and daylight. Traditional aluminium mullions or transoms are replaced secondary steel supports which are designed to resist wind loads.

The basic approach to this installation uses stainless steel stand-offs or spiders that are fixed to painted steel sections which are fixed to the ground slab and to the existing plated and riveted steel be beams at structural soffit level.

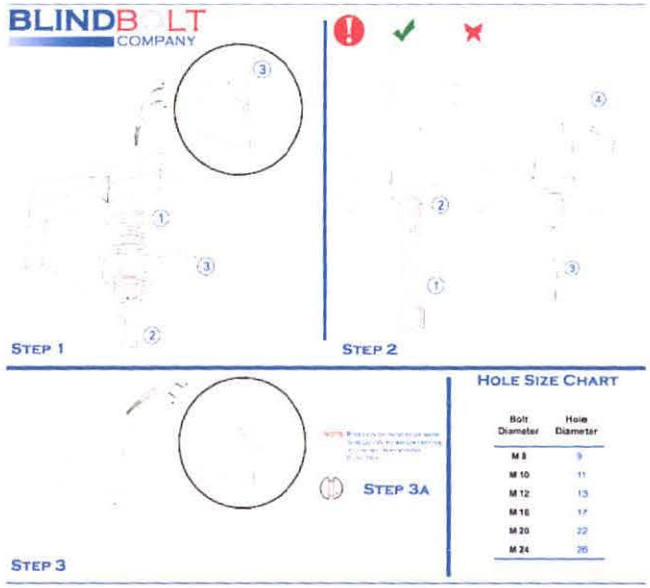
This method allows the glass to be cantilevered off the support structure. If necessary, this system can allow for an unlimited height in glazing provided that there are intermediary structural supports at given spans.

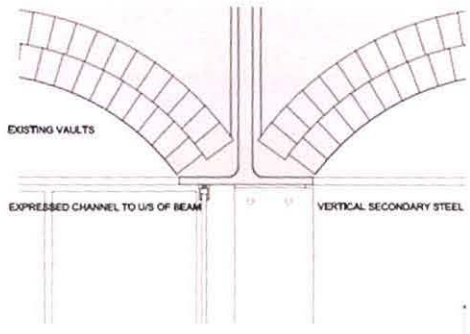
There are 4 basic components to the installation:
Secondary steel sections to which stainless steel stand offs or spiders are fixed
Framed and over clad "cheeks" that form the reveals of the new glass assemblies
Toughened glass panels held in place by spiders and / or glazing channels
Toughened glass panels used as sliding or swing doors.

Secondary steel

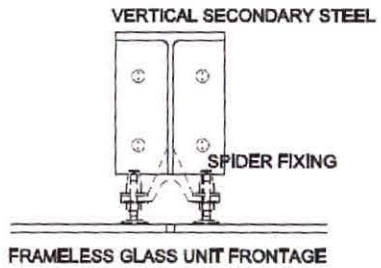
Secondary steel sections are either "L" or "T" section steel members which span ground slab to existing steel beam over in a single span. The number of secondary members varies subject to opening width. Steel sections are finished in an agreed neutral paint colour and will be fixed to the ground slab using either expanding bolts or resin anchors. The fixing to the existing steel will be by a "toggle" bolt which will involve drilling a hole through the bottom flange of the beam and insert a bolt which clamps against the topside of the bottom flange (see images below) resulting a connection with minimal damage to the existing beam. The secondary steels will be packed off to avoid clashes with the downstand rivets on the flange.

Blind Bolt typical fixing





Section through secondary steel



Plan of secondary steel "T"

Framed and overclad solid reveals

Vertical and horizontal lightweight galvanised steel channels will be fixed to the internal face of the existing brick piers, the ground slab and to the part brick vault over. Fixings will be standard frame anchors apart from the brick vault which will be chemical anchors to avoid causing bricks to shatter.
Additional intermediate framing members will be fixed at agreed centres and the whole frame infilled with agreed insulation. The frame will be overclad with an inert board product.
A glazing channel will be fixed through the board to secondary steel framing behind ready to take toughened glass planels.
The construction will be overclad in powder coated pressed metal panels finished in an agreed colour. The panels will be scribed to fit closely to the profile of the brick vault.
The glazing channel will be just visible within the overclad reveal.

Toughened glass panels held in place by spiders and / or glazing channels

Toughened and heatsoaked panels of agreed dimensions will be fixed into glazing channels at the head, cill and reveals of the assembly.
Glazing channels will be screw fixed to the ground slab and reveals using proprietary fixings manufactured for this purpose. Fixing to the underside of the bottom flange of the existing plated and riveted steel beam will be by toggle fixings in predrilled holes in agreed locations.
As work proceeds, glass panels will be fixed into channels and connected to secondary steels by means of allen key countersunk bolts (or similar) to stainless steel "spider", adjusted to plumb and level.
In certain locations, the base of the fixed glazed panels may require stainless steel "stall risers" to accommodate any changes in gradient across the frontage.

Toughened glass panels used as sliding or swing doors.

As work proceeds, glass doors will be installed on either swing or sliding door gear. All fittings will be satin stainless steel finish products. Sliding doors will be activated by movement detectors at the head of the doors.

5.0 Drawings List...submitted as part of the Listed Building Application

Proposed arrangements

AL(05)003	Proposed ground floor plan of Warehouse	1:500	A3
AL(05)004	Proposed ground floor plan of Warehouse	1:100	A1
AL(05)005	Proposed north elevation of Warehouse	1:250	A3
AL(05)006	Proposed north elevation of Warehouse	1:100	A1
AL(05)007	Proposed plan, section and elevation of Warehouse entrance	1:50	A1
AL(05)008	Proposed part plan, section and elevation of Unit 4	1:50	A1
AL(05)009	Proposed part plan, section and elevation of Unit 3	1:50	A1
AL(05)010	Proposed part plan, section and elevation of Unit 5	1:50	A1
AL(05)020	Proposed typical construction details	1:10	A1