INSPECTION CHECKLIST

DUCTWORK SYSTEMS

Checklist DW1 – Sheet metal ductwork - General

Note: Analysis of the requirements of DW/144 and related documents does not suggest major differences in the basic installation of pre-made rectangular, circular and flat oval duct and fittings.

All items marked non-compliant (NC) must be explained on the "Non-compliance Report"

Item	Requirement	Source doc	OK	NC
	General			
1.	Ductwork layout drawings should be available at all times on site			
2.	Operatives should have access on site to DW144 "Specification for sheet metal ductwork"	DW/144		
3.	Duct work sections should be unloaded and stored on site in such a way as to avoid damage and contamination	DW/144 Appendix C		
	Health and Safety			
4.	Operatives should follow the Health and Safety at work policy of their employer. In all cases, sealant materials must be applied strictly in accordance with the manufacturer's instructions and COSHH assessment carried out. Only an approved type of sealant, gasket or tape shall be used by the contractor	DW/144 section 8.2.1 JS21 & JS21A		
	Assembly of Ductwork Sections on Site			
5.	**Rectangular Ducts:** Cross joints should be sealed in accordance with Figs 10,13&14 Fastenings and maximum spacings should be in accordance with section 10.7	DW144 section 10.4.2 DW144 section 10.7		
6.	**Circular Ducts:** Spirally wound and straight seamed cross joints should be sealed in accordance Figs32-45 Fastenings and maximum spacings should be in accordance with section 13.3	DW144 section 13.2.1 DW144 section 13.3		
7.	**Flat Oval Ducts:** Spirally wound and straight seamed cross joints should be sealed in accordance with Figs 53-63 Fastenings and maximum spacings should be in accordance with section 16.4.	DW144 section 16.3.1 DW144 section 16.4		
8.	Inspector to check assembly of cross joints of duct in inaccessible places eg where it duct is installed against a wall.(*Inspection can be carried out by use of a small mirror on the end of a stick*.)			
9.	Partially completed ductwork must be temporarily sealed off and supported as necessary for safety and to avoid undue stress			

	on fixings, hangers and joints.			
	Access/Inspection openings			
10.	All openings should be made safe and have sealed access panels/covers which can be speedily removed and replaced. **Self piercing screws are not acceptable.**	DW144 section 20.1		
11.	There should be no external obstructions to preventing a panel/cover from being removed			

Checklist DW2 – Sheet metal ductwork – Hangers and support

Item	Requirement	Source doc	OK	NC
1.	The fixing to the building structure should of a strength and durability compatible with the ductwork support attached to it. A fixing to concrete or brickwork must be made in such a way that it cannot be loosen or pull out through normal stressing or normal changes in the building structure.	DW144 Section 19.2		
2.	Hangers for horizontal ductwork should be of an appropriate material galvanised steel rod or studding or flat strap or stranded wire	DW144 Section 19.3.1		
3.	Projection of a rod or studding hanger through the bottom bearer should, where practicable not exceed twice the thickness of the securing nut.	DW144 Section 19.3.1		
4.	Duct bearing member for horizontal ductwork should be in accordance with section 19.3.1	DW144 Section 19.3.1		
5.	Hangers, supports and distance between supports for rectangular, flat oval and circular ducts should be in accordance with table 15 of DW/144	DW144 Table 15		
6.	Duct hangers should be fixed to avoid torsion on the ductwork.			
	Vertical Ducts			
7.	The installation of vertical ducts exceeding 4 metres in length must comply with the designers requirements (check installation drawings)	DW144 section 19.4		
8.	Vertical ducts should be adequately supported from the stiffened angle or the angle frame, or by separate supporting angles fixed to the duct	DW144 section 19.4		
	Heavy Loadings and larger ducts			
9.	Duct support must take into account any addition loads imposed on the duct by attached equipment	DW144 section 19.5		
	Insulated ducts with vapour sealing			
10.	Vapour sealing around the hanger may be required where the temperature of the air in the duct is low enough to promote condensation on external surfaces (to be specified by the designer – check installation details)	DW144 section 19.6		

Checklist DW3 – Sheet metal ductwork – Fire and Smoke Dampers

Item	Requirement	Source doc	OK	NC
1.	Installation of fire and smoke dampers should be in accordance with DW/TM3 and manufacturers guidance	DW/TM3		
2.	Access panels should be provided to give access to fire and	DW 144		

	smoke dampers for inspection and servicing	section 20.2.1.1		

Checklist DW4 – Sheet metal ductwork – Miscellaneous

Item	Requirement	Source doc	OK	NC
	Flexible ducts			
1.	Fastenings for flexible metal ducts should be as for rigid circular ducts DW 144 section 13.3 & Table 9. Sealing should be as section 8.	DW144 section 25.2.1		
2.	Flexible fabric ducts should be fastened at each end using a proprietary band without causing damage. The airtightness of the system should be maintained.	DW 144 section 25.2.2		
3.	Flexible ducts should be supported without excessive sagging and kinking	DW 144 section 25.3		
	Flexible Joint Connections			
4.	Flexible joint connections should be in accordance with fig.80 DW144. The effective length of the unsupported material shall be 50mm (minimum) –250mm (maximum)	DW 144 sections 26.1 & 26.3		
5.	Joint connections used at building expansion joints and fan inlet/outlets should be aligned correctly and should not be taunt			
6.	With flanged rectangular connections, the flexible material shall be held in place with flat bar strips of not less than 2 mm thick attached to the flanges using suitable fixings.	DW144 section 26.4		
7.	Connections to circular and oval ducts should follow the requirements in section 26.5 & 26.6 DW144	DW144 sections 26.5 & 26.6		
	Connections to Building Openings			
8.	Ductwork connections to building openings shall have a flange of suitable profile to permit practical fixing to the opening frame. Gasket strip or sealer shall be applied between the flange and building opening frame.	DW144 section 28.2		

Checklist DW5 – Sheet metal ductwork – Testing

Item	Requirement	Source doc	OK	NC
1.	**General:** Air leakage testing is mandatory for high-pressure ductwork. Testing should be in accordance with the procedures laid down in DW/143. No such testing is required for low or medium pressure ductwork unless specified by the client. The test should be carried out as the work proceeds and prior to the application of thermal insulation.	DW/143		
2.	For the purposes of testing the contractor should have the following: DW/143 " A practical Guide to Ductwork Leakage Testing", Test apparatus and instrumentation as specified in DW143			
3.	Is there compliance with test methodology	DW143		
4.	Are the results of the air leakage rate within the acceptable limits	DW/143 Table1		

Checklist DW1 – Plastics ductwork - General

Note: Analysis of the requirements of DW/154 and related documents does not suggest major differences in the basic installation of pre-made rectangular and circular ducts and fittings.

Item	Requirement	Source doc	OK	NC
1.	Ductwork layout drawings should be available at all times in site	-		
2.	Operatives should have access on site to DW154 "Specification for plastics ductwork"	DW/154		
3.	Duct work sections should be unloaded and stored on site in such a way as to avoid damage and contamination	DW/144 Appendix C		
	Health and Safety			
4.	Operatives should follow the Health and safety at Work policy of their employer. In all cases, sealant materials must be applied strictly in accordance with the manufacturer's instructions and COSHH assessment carried out. Only an approved type of sealant, gasket or tape shall be used by the contracto	DW/154 section 8.2 JS21 & JS21A		
	Assembly of Ductwork Sections on Site			
5.	**Rectangular Ducts** Flanged cross joints for UPVC and PP rectangular duct sections should be sealed using a manufacturers approved type of sealant or gasket. Rectangular UPVC and PP socket and spigot cross joints should be sealed by continuous hot air welding and follow procedure 8.2.3 in DW154	DW154 figures 3 and 4 DW154 Section 8.2.3 and figure 1		
6.	**Circular Ducts** Flanged cross joints for UPVC and PP circular duct sections should be sealed using a manufacturers approved type of sealant or gasket. Circular UPVC socket and spigot cross joints or sleeve joints should be sealed by either solvent cementing or continuous hot air welding and follow requirements 8.2 in DW 154	DW154 figure 12 DW154 section 8.2.		
7.	Inspector to check assembly of cross joints of duct in inaccessible places eg where it duct is installed against a wall. *(Inspection can be carried out by use of a small mirror on the end of a stick.)*			
8.	Partially completed ductwork must be temporarily supported as necessary for safety and to avoid undue stress on fixings, hangers and joints			
	Access/Inspection openings			
9.	All openings should be made safe and have sealed access panels/covers which can be speedily removed and replaced. **Self piercing screws are not acceptable.**	DW154 section 20 and DW/144 Part 7 Section 20		
10.	There should be no external obstructions to preventing a			

	panel/cover from being removed			

Checklist DW2 – Plastics ductwork – Hangers and support

Item	Requirement	Source doc	OK	NC
1.	The fixing to the building structure should of a strength and durability compatible with the ductwork support attached to it. A fixing to concrete or brickwork must be made in such a way that it cannot be loosen or pull out through normal stressing or normal changes in the building structure.	DW144 Section 19.2		
2.	**Rectangular Ducts** Hangers and supports for un-reinforced rectangular horizontal ductwork should be in accordance with table 8 of DW154 **Circular Ducts** Hangers and supports for un-reinforced circular horizontal ductwork should be in accordance with table 9 of DW154	DW154 Section 14.2 DW154 section 14.3		
3.	Projection of a rod or studding hanger through the bottom bearer should, where practicable not exceed twice the thickness of the securing nut.	DW144 Section 19.3.1		
4.	The arrangement of support bears and hangers should be in accordance with figs 14-22 DW145	DW145 Section 14		
	Vertical Ducts			
5.	Vertical ducts should be supported at 4 metres intervals. Or where they pass through a floor. The supports should not exceed 4.5 metres intervals.	DW154 section 14.4		
6.	Vertical ducts should be adequately supported from the stiffened angle or the angle frame, or by separate supporting angles fixed to the duct. See figures 17 and 18 DW154	DW154 section 14.4		
	External ducts			
7.	Ducts external to buildings must be adequately supported in accordance with the designers requirements	DW154 section 14.5		

Checklist DW3 – Plastics ductwork – Fire dampers and intumescent sleeves

Item	Requirement	Source doc	OK	NC
1.	Installation of fire dampers and intumescent sleeves should be in accordance with DW/TM3 and manufacturers guidance. COSHH assessment should be undertaken.	DW/TM3 JS 21 & JS 21A		
2.	Access panels should be provided to give access to fire and smoke dampers for inspection and servicing	DW 144 Section 20.2.1.1		

Checklist DW4 – Plastics ductwork – Miscellaneous

Item	Requirement	Source doc	OK	NC
	Flexible/expansion joint connections			
1.	Flexible/expansion joints when incorporated should be aligned	DW154		

	correctly during installation and maintain the air tightness of the system	Section 18.1		
2.	The minimum effective length of a flexible joint shall be 50 mm. In no case shall a flexible joint exceed 250mm.	DW154 Section 18.3		
3.	With flanged rectangular and spigot connections, the flexible material shall be held in place with flat plastic strips of not less that 6 mm thick	DW154 Section 18.4		
4.	With flanged circular connections the flexible material shall be held in place with flat plastic backing strips or proprietary clip bands with screw or toggle fastener	DW 154 Section 18.5		
5.	For rectangular and circular ducts where the parent and flexible material are from similar based product, they can be joined to the duct using the welding method described in DW154 section 8.2.3	DW 154 Section 8.2.3		
	Connections to Building Openings			
6.	Ductwork connections to building openings shall have a flange of suitable profile to permit practical fixing to the opening frame. Gasket strip or sealer shall be applied between the flange and building opening frame.	DW154 Section 20.2		
7.				

Checklist DW5 – Plastics ductwork – Testing

Item	Requirement	Source doc	OK	NC
1.	**General:** Air leakage testing is mandatory for high-pressure ductwork. Testing should be in accordance with the procedures laid down in DW/143. No such testing is required for low or medium pressure ductwork unless specified by the client or designer. The test should be carried out as the work proceeds and prior to the application of thermal insulation.	DW/143		
2.	For the purposes of testing the contractor should have the following: DW/143 " A practical Guide to Ductwork Leakage Testing", Test apparatus and instrumentation as specified in DW143			
3.	Is there compliance with test methodology	DW143		
4.	Are the results of the air leakage rate within the acceptable limits	DW/143 Table1		