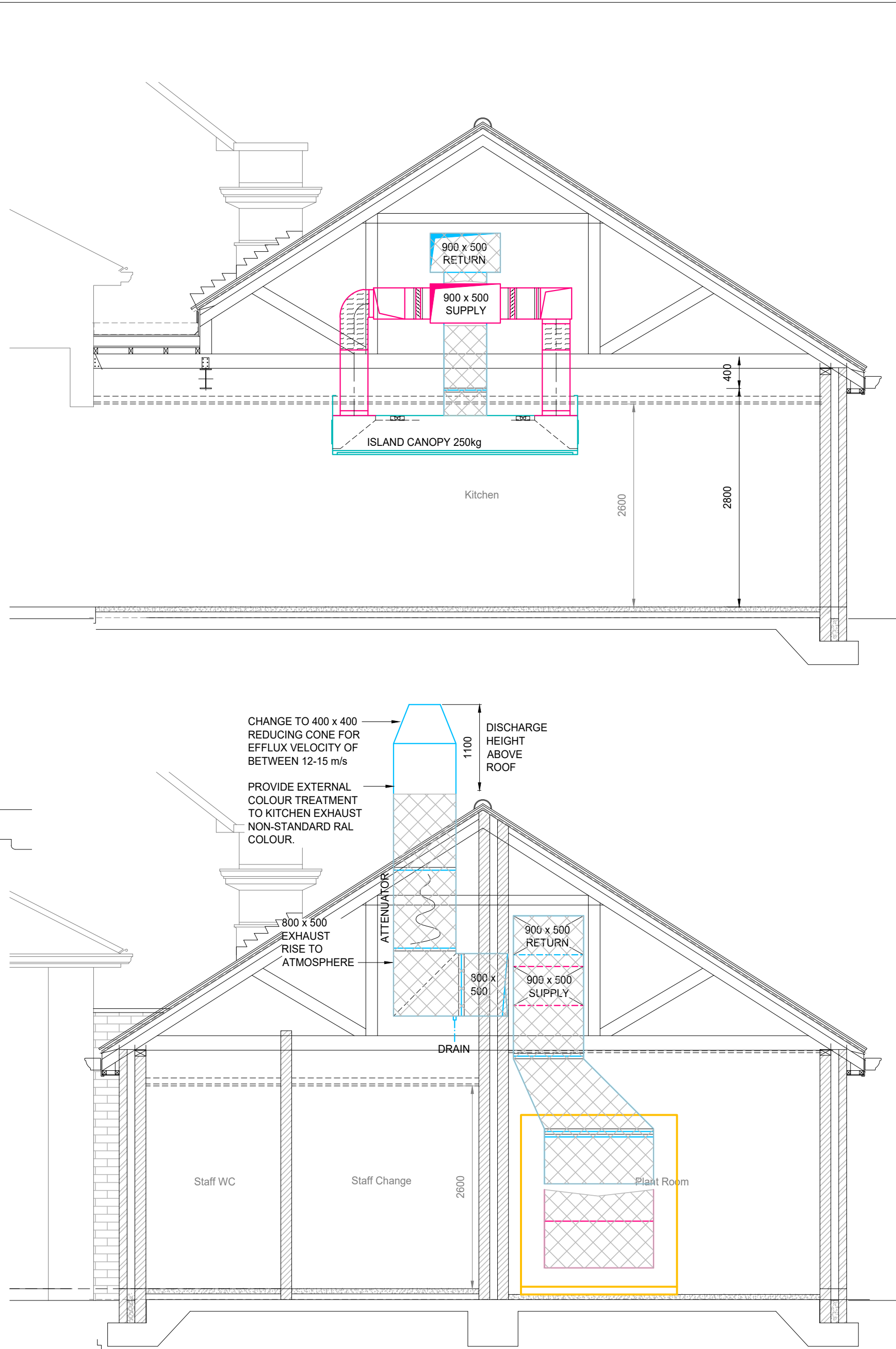
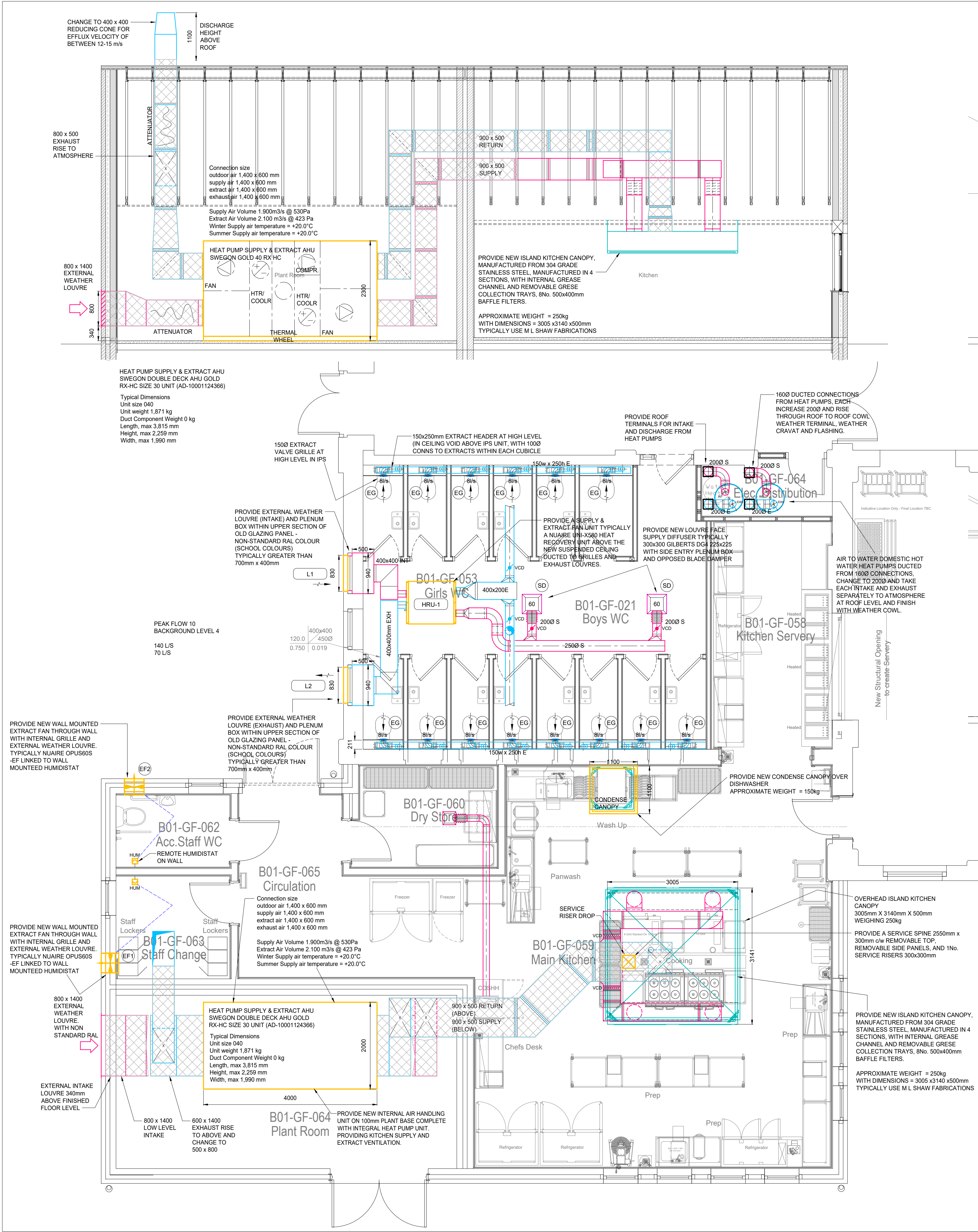




DUCTWORK TO HAVE FIRE INTEGRITY AND FIRE RATING IN ACCORDANCE WITH BESA DW172 (2018)

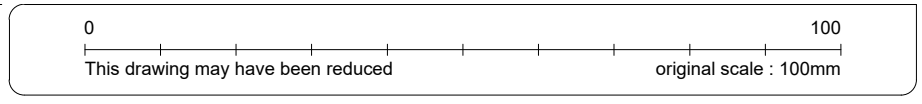
PROVIDE FIRE RESISTANT AND SMOKE CONTROL DUCTWORK. THE PERIODS OF INTEGRITY AND INSULATION TO WHICH THE DUCTWORK IS CONSTRUCTED, MUST BE THE SAME AS THE RATING OF THE COMPARTMENT THAT IS BEING BREACHED.

THE CONSTRUCTION OF FIRE-RESISTANT DUCTWORK, WHICH SHALL COMPLY WITH BS EN 1366-1 FOR FIRE RATED DUCTS

INSULATION THICKNESSES ON DUCTWORK			
MATERIAL	WARM AIR DUCTWORK	CHILLED AIR/DUAL PURPOSE DUCTWORK	THICKNESS (mm)
SURFACE	THICKNESS (mm)	THICKNESS (mm)	
CONTENTS (°C)	UP TO +18°C	AIR AT +15°C	
ROCK MINERAL WOOL	50	75	
GLASS MINERAL WOOL	40	60	
PHENOLIC FOAM	25	40	
INTITILE RUBBER	40	60	
BASIS: WARM AIR DUCTWORK AT 35°C CHILLED AIR DUCTWORK AT 5°C & BS 5422 2006 METHOD FOR SPECIFYING THERMAL INSULATING MATERIALS FOR PIPES, TANKS, VESSELS, DUCTWORK AND EQUIPMENT OPERATING WITHIN THE TEMPERATURE RANGE -40°C TO +70°C			
THICKNESSES OF INTITILE RUBBER ARE MINIMUM THICKNESSES			
THICKNESSES OF MINERAL WOOL AND PHENOLIC FOAM ARE THE NEAREST COMMERCIALY AVAILABLE THICKNESSES TO MEET THE MINIMUM REQUIREMENTS			
ALL DUCTWORK SHALL BE INSULATED WHERE VISIBLE (i.e. EXPOSED DUCTWORK) WHEN THE DUCT SURFACE TEMPERATURE IS BELOW THE DEW POINT OF THE AIR WITHIN THE SPACE SERVED			
MINIMUM CLEARANCES TO PIPE OR PIPE INSULATION			
FROM	WALL	FLOOR	CEILING
MINIMUM CLEARANCE (mm)	25	50	50
OTHER PIPES	25	50	50
ELECTRICAL CABLES, CONDUITS, SWITCHGEAR	150	150	150

LOCATION OF ACCESS PANELS FOR INSPECTION PURPOSES AND CLEANING			
ELEMENT	LOCATION	RECTANGULAR DUCT SIZE (H x W)	CIRCULAR DUCT SIZE (H x W)
STRAIGHT DUCT	15M CENTRES	200 300 400 500 600 800	200 300 400 500 600 800
CONTROL DAMPERS	BOTH SIDES		
THE DAMPERS	BOTH SIDES		
HEATING & COOLING COILS	BOTH SIDES	300/400 ACCESS PANEL	400/400 ACCESS PANEL
ATTENUATORS	BOTH SIDES	300/400 ACCESS PANEL	400/400 ACCESS PANEL
FILTER SECTIONS	BOTH SIDES	300/400 ACCESS PANEL	400/400 ACCESS PANEL
AIR TURNING VANES	BOTH SIDES	300/400 ACCESS PANEL	400/400 ACCESS PANEL
90° BEND / SWAY / PANS	ONE SIDE	300/400 ACCESS PANEL	400/400 ACCESS PANEL
INDUCT FANS / EXHAUSTS	BOTH SIDES		
LOUVERES / GRILLE / MESH	ONE SIDE		

LOCATION OF ACCESS PANELS FOR INSPECTION PURPOSES AND CLEANING - KITCHEN EXTRACT			
ELEMENT	LOCATION	PANEL SIZE	
STRAIGHT DUCT	3M CENTRES		
RISERS	3M CENTRES		
CONTROL DAMPERS	BOTH SIDES		
FIRE DAMPERS (ONLY FITTED ON OLDER SYSTEMS)	BOTH SIDES		
ATTENUATORS	BOTH SIDES		
CHANGES IN DIRECTION	BOTH SIDES		
DUCT FANS / EXHAUSTS	BOTH SIDES		
LOUVERES / GRILLE / MESH	ONE SIDE		



Reference Drawings	Legend	Notes
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VENTILATION STANDARD NOTES			
THIS DRAWING IS TO BE READ IN CONJUNCTION WITH THE OTHER SERVICES LAYOUT DRAWINGS, SPECIFICATIONS, SCHEMATICS, EQUIPMENT SCHEDULES AND ARCHITECTURAL AND STRUCTURAL INFORMATION.			
PREPARE FABRICATION DRAWINGS AND CARRY OUT FABRICATION OF DUCTWORK IN ACCORDANCE WITH DW 144 AND DW 154 AS APPROPRIATE.			
SIZES OF DUCTWORK ARE INTERNAL DIMENSIONS, WHERE APPLICABLE MAKE ALLOWANCE FOR ANY INTERNAL LINING.			
USE A MEMBER OF THE HVCA SPECIALISING IN THE TRADE OF MANUFACTURING AND INSTALLING DUCTWORK.			
SUPPLY DUCTWORK IN ACCORDANCE WITH CLASSIFICATION IN DW 144 TABLE 1			
PLANT CONNECTIONS: MAKE CONNECTION BETWEEN AIR HANDLING ASSEMBLY AND DUCTWORK SYSTEM IN ACCORDANCE WITH DW 144.			
FLANGED CONNECTIONS: PROVIDE BOLTED FLANGED JOINTS FOR CONNECTING DUCTWORK TO FLANGED ITEMS OF PLANT. BUILDERS WORK FRAMES AND WHERE REMOVABLE SECTIONS OF DUCTWORK ARE REQUIRED.			
INSTALL DUCTWORK IN ACCORDANCE WITH DW 144 AND DW 154 AS APPROPRIATE. ENSURE THAT THERE ARE NO SHARP EDGES OR CORNERS ON CUT EDGES ON DUCTWORK. FLANGES AND SUPPORTS: ARRANGE DUCTWORK TO DRAIN ANY ENTRAINED MOISTURE AND ENSURE THE LAP JOINTS MINIMISE MOISTURE LEAKAGE.			
CONNECTION TO BUILDERS WORK: COMPLY WITH DW 144 PART 7 SECTION 2B.			
SPACE SUPPORTS IN ACCORDANCE WITH DW 144 PART 6 OR DW 154 PART 5 AS APPROPRIATE.			
INTERNAL CLEANLINESS: PROVIDE THE LEVEL OF CLEANLINESS AND PROTECTION AS DEFINED IN HVCA DOCUMENT D0107.			
DUCTWORK CLEANING PROVISIONS: ENSURE THAT THE ENTIRE DUCTWORK SYSTEM INCLUDING ALL EQUIPMENT BE CLEARED OUT PRIOR TO COMMISSIONING RUNS WITH THE HVCA GUIDE TO GOOD PRACTICE. INTERNAL CLEANLINESS OF DUCTWORK SYSTEMS: THIS IS ASSUMED TO BE TO POLISHED, PRE-COMMISSIONING SPECIALIST CLEAN. ALL OPEN ENDS OF DUCTWORK SHALL BE PROTECTED DURING THE INSTALLATION FROM THE INGRESS OF DIRT AND DEBRIS.			
WEATHERPROOFING: FIT DUCTWORK WITH TRIMMING ANGLE AND WEATHER CRAVAT, SKIRT, FLASHING PLATE AND COWL, WHERE DUCTWORK PASSES THROUGH OR TERMINATES IN ROOF, TO ENSURE A WEATHERPROOF SEAL TO BUILDING STRUCTURE.			
ENCLOSED DUCTS PASSING THROUGH BUILDING ELEMENTS (WALLS, FLOORS, PARTITIONS, ETC.) WITHIN PURPOSE MADE SLEEVES, OUT SLEEVES OF THE SAME MATERIAL AS THE DUCT AND PACKED WITH MINERAL FIBRE OR NON-FIBRILLABLE AND FIRE RESISTANT MATERIAL TO FORM A FIRESTOP STOP OF ADEQUATE RATING AND TO PREVENT AIR MOVEMENT AND NOISE TRANSMISSION BETWEEN DUCT AND SLEEVE.			
PLENUM BOXES: PROVIDE ALL GRILLES AND DIFFUSERS WITH PLENUM BOXES AND SPOOT CONNECTIONS, UNLESS IDENTIFIED OTHERWISE ON THE EQUIPMENT SCHEDULES. LINE PLENUM BOXES WITH ACOUSTIC LINING (PREFERRED COLOUR OF GRILLES AND PLENUMS IS BLACK). COVER FULL WIDTH OF DEPTH OF PLENUM BOX AND EXTEND BEYOND EACH SIDE OF THE AIR INLET TO ENSURE EVEN AIR DISTRIBUTION. POSITION CENTRALLY RELATIVE TO PLENUM BOX AIR INLET.			
INSTALLATION WHERE INSULATION IS CARRIED THROUGH DUCTWORK SUPPORT: PROVIDE INSULATION BETWEEN DUCT AND SUPPORT USING HIGH DENSITY PHENOLIC FOAM STRIPS. BUT INSULATION TO SPACES AND CARRY OVER FINISH BY 40MM AND TYPE DONT PROVIDE A SHEET METAL PROTECTING SLEEVE. LOAD BEARING MATERIALS MUST HAVE A SUITABLE COMPRESSIVE STRENGTH FOR THE APPLIED LOAD.			
INTEGRITY OF VAPOUR BARRIERS: WHERE A VAPOUR BARRIER IS INDICATED ENSURE ITS INTEGRITY THROUGHOUT. REPAIR IMMEDIATELY ANY DAMAGE TO VAPOUR BARRIERS AND WHERE SUCH BARRIERS HAVE BEEN APPLIED OFF SITE, REPAIR TO MANUFACTURERS INSTRUCTIONS. WHERE ALUMINIUM SHEETING IS USED FOR PROTECTION, SUBMIT PROPOSAL FOR BECOMING SHEETING WITHOUT IMPAIRING THE INTEGRITY OF THE VAPOUR SEAL FOR APPROVAL.			
EXTERNAL DUCTWORK AND PLANTROOM INSULATION FINISHES: UNLESS NOTED OTHERWISE WITHIN PLANTROOMS AND TO ANY PREWORK AND DUCTWORK SERVICES INSTALLED EXTERNALLY TO THE BUILDING ARE TO BE FULLY INSULATED TO THE CORRECT STANDARD AND BE PROVIDED WITH FLAT (EMBOSSED) OR PROFILED ALUMINIUM CLADDING APPLIED DIRECTLY TO INSULATING MATERIAL. THICKNESS 0.7MM ON ALL PREWORK AND DUCTWORK AS A PROTECTIVE COVERING.			
FAN COIL UNITS: INSTALL IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS TO GIVE A NEAT APPEARANCE, WITH SUPPORTS OUT OF VIEW. ENSURE EQUIPMENT IS FINELY ADJUSTED AND LEVEL. THE DUCTWORK INSTALLER SHALL CONTACT THE PLANT ROOMS AT THE REAR OF FAN COIL UNITS LINED WITH 25MM ACOUSTIC INSULATION.			
PROVISION OF ACCESS DOORS: ACCESS DOORS AND CLEANING DOORS SHALL BE PROVIDED TO THE DUCTWORK SYSTEM FOR INSPECTION, SERVICING AND CLEANING ACCESS. THE LOCATION OF DUCTWORK ACCESS DOORS SHALL BE SO THAT THEY ARE READILY ACCESSIBLE AND AS A MINIMUM ADJACENT TO THE POSITIONS IDENTIFIED WITHIN THE TABLE BELOW.			
FLEXIBLE DUCTS: SUPPLY AND FASTEN FLEXIBLE DUCT CONNECTIONS AS DW 144 PART 7 SECTION 2S. USE FLEXIBLE DUCT CONNECTIONS IN APPLICATIONS LISTED IN DW 144 PARAGRAPH 25.1. THEY SHALL BE USED IN THE FOLLOWING APPLICATIONS UNLESS SPECIFIED OTHERWISE:			
i) CONNECTING TERMINAL UNITS			
ii) CONNECTING FAN COIL UNITS			
iii) ANY EQUIPMENT SUBJECT TO MOVEMENT AND VIBRATION			
iv) GRILLES AND DIFFUSERS			
v) PLENUM BOXES			
THE FLEXIBLE DUCT CONNECTIONS SHALL BE INSTALLED IN STRAIGHT LENGTHS ONLY AND NOT BE USED IN REPLACEMENT OF A RIGID BEND. THEY SHALL BE KEPT TO A MINIMUM AND SHALL NOT EXCEED 100mm IN LENGTH.			
PROVIDE TEST HOLES IN DUCTWORK SYSTEM TO ALLOW COMPLETE TESTING AND BALANCING OF SYSTEM IN ACCORDANCE WITH GBSE COMMISSIONING CODE A			
PROVIDE HOLES IN METAL DUCTWORK, IN ACCORDANCE WITH DW 144 PART 7 PARAGRAPH 20.7, TO ACCOMMODATE THERMOSTATS, HUMIDISTATS AND OTHER CONTROL DEVICES BY SYSTEMS AND SIZES.			
COMMISSIONING: CARRY OUT COMMISSIONING OF INSTALLATIONS IN ACCORDANCE WITH THE PROCEDURES, CHECKS AND TOLERANCES GIVEN IN THE BSRIA APPLICATION GUIDE FOR AIR SYSTEMS TO ACHIEVE THE STANDARDS SET IN THE GBSE COMMISSIONING CODE. CARRY OUT CHECKS AND PROCEDURES AS DETAILED IN GBSE COMMISSIONING CODE A SECTION 4.1. SET UP WORK AND REGULATE AIR DISTRIBUTION SYSTEMS IN ACCORDANCE WITH GBSE COMMISSIONING CODE A SECTION 4.2. ENSURE THAT THE CONTROL SYSTEM FUNCTIONS. KEEP A SYSTEMATIC RECORD OF COMMISSIONING RESULTS.			
THERMAL INSULATION WORKMANSHIP: INSTALL INSULATION IN ACCORDANCE WITH BS 810. CARRY OUT THERMAL INSULATION WORK USING ONE OF THE SCHEDULED FINISHES EMPLOYING BALLS OF CRUMBLE CONFORMANT WITH CLASS OF WORK. IN LOCATIONS WHERE INSULATION CANNOT BE INSTALLED ADEQUATELY AT PIPELINE OR OUTLINE INSTALLATION, PRE-INSULATED SECTIONS SHALL BE INSTALLED.			
INSULATION TO SUBS: SUBS SHALL BE EQUIVALENT IN THERMAL AND PHYSICAL PROPERTIES TO THAT SPECIFIED FOR THE REMAINDER OF THE SYSTEM INCLUDING VAPOUR BARRIERS. DO NOT APPLY THERMAL INSULATION UNTIL INSTALLATION HAS BEEN FULLY TESTED AND ALL JOINTS PROVIDED SOUND. ENSURE ALL MATERIALS ARE KEPT DRY.			
ENSURE ALL DUCTWORK SURFACES ARE DRY BEFORE THE INSTALLATION OF THERMAL INSULATION. INSULATE EACH UNIT SEPARATELY. DO NOT ENCLOSE ALKALINE UNITS TOGETHER. ENSURE THERE IS CLEARANCE BETWEEN INSULATED PIPES. APPLY INSULANTS, FACINGS, COATINGS AND PROTECTION STRICTLY IN ACCORDANCE WITH MANUFACTURERS INSTRUCTIONS.			
NEATY FINISH JOINTS, CORNERS, EDGES AND OVERLAPS AND, WHERE POSSIBLE, ARRANGE OVERLAPS TO FALL ON BLIND SIDE. ENSURE OVERLAPS ARE NEAT AND EVEN AND PARALLEL TO CIRCUMFERENTIAL AND LONGITUDINAL JOINTS.			
ENSURE THAT WHERE PROTECTION IS APPLIED TO INSULATION, THE JOINTS FALL BLIND SIDE AND THAT THE JOINTS ARE MADE TO SHED WATER AND SEALED WITH WATERPROOF TAPE, ADHESIVE OR JOINT SEALANT WHERE APPROPRIATE.			
ROOFING FELT			
APPLY DIRECTLY TO INSULATING MATERIAL WITH AN OVERLAP OF AT LEAST 50mm ON ALL JOINTS. MADE TO SHED WATER. SECURE IN PORTION WITH GALVANIZED WIRE NETTING OF 1mm x 25mm MESH. FINISH WITH TWO COATS OF BLACK BITUMINOUS PAINT.			
INSTALL ALUMINIZING COATED STEEL PROTECTION, IN ACCORDANCE WITH MANUFACTURERS INSTRUCTIONS. ALUMINIUM SHEETING, SECURE LAPPED JOINTS (AT LEAST 40mm) BY MAKING UP FOR PIPES AT A MINIMUM SPACING OF 50mm FOR COLD PIPES AND MATCHING ALUMINIUM STRIPS AT MAXIMUM SPACING OF 50mm. JOINTS OPERATING BELOW AMBIENT TEMPERATURE SEAL ALL JOINTS AGAINST MOISTURE. FOR EXTERNAL USE MAKE JOINTS SHED WATER AND USE SHEETS WITH TREATED SURFACE.			

MANCHESTER CITY COUNCIL

Project
New Moston Primary School, Moston Lane East, Manchester M40 3QJ - New Kitchen Provision

Title
PROPOSED VENTILATION LAYOUT

Scale/Size	1:50 @ A1	Drawn	MRL	Designed	BC	Software	AutoCAD
		Date	MAY 22	Date	MAY 22		© Drawing Copyright

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Project number	Drawing number	Revision
1655	1655 (57) M1	C1