



# Technical Guidance Document TGD - 032

## Guidelines for the Design & Installation of Woodwork Dust Extraction Systems in Post Primary Schools

(1<sup>st</sup> Edition, September 2012)

**(THIS DOCUMENT SHALL BE READ IN CONJUNCTION WITH  
TGD - 003, 005, 006 & 031)**

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### PLANNING AND BUILDING UNIT

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# 1. INTRODUCTION:

The purpose of this document is to provide guidance to Building Services Consulting Engineers responsible for designing and procuring woodwork dust extraction systems for

- New schools and extensions to schools where Construction Studies Rooms, Technology Rooms and Wood/Technology Machine and Preparation Rooms are being provided
- Existing post primary schools with Constructions Studies Rooms or Technology Rooms.

It is also intended to provide an overview for Schools on available systems. A questionnaire is provided in [Appendix A](#) to assist Principals and Construction Studies and Woodwork Teachers in assessing which type of dust extraction may best suit an existing school's needs.

This document is not a detailed specification for inclusion in contract documents, but rather a guide to those responsible for designing, preparing drawings, specifications and tender documents.

In applying these guidelines to projects, Schools and their Consultants will be obliged to comply in full with the [Department of Science & Skills \(DoES\) Design Team Procedures \(DTP\)](#) and other guidance documents as appropriate and the procurement of systems must comply with Public Procurement Procedures.

Where dust extraction systems are being provided in existing school buildings the school authority must employ a Building Services Consulting Engineer to advise them of the scope and extent of the works required and to design and oversee the provision of the dust extraction installations. This is a condition of grant aid. Where necessary The Building Services Consulting Engineer shall buy in the services of an Architect to advise him on any improvements required to natural ventilation levels in Construction Studies/Wood Preparation Rooms or any other architectural works associated with the provision of dust extraction systems e.g. provision of additional windows etc.

Occupational exposure limits for woodwork dust are given in the Guidelines to the Safety, Health and Welfare at Work (Chemical Agents) Regulations, 2001 and the associated 2002 Code of Practice for the Safety, Health & Welfare at Work.

Dust levels may be controlled by an integral system, a local extraction system or a centralised extraction system.

Dust collection equipment and systems should be capable of handling hardwood, softwood and MDF dust and shall be designed to limit room dust contamination levels to within the acceptable occupational exposure limits.

In all instances, the DoES shall have the final say in the application of these guidelines to projects where grant-aid is to be sanctioned.

For further advice on these or any other matter, please contact:

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All new Standards and Acts published that come into force after publication of this document shall apply

## 2. WOODWORK EQUIPMENT APPROVED FOR THE PROVISION OF DUST EXTRACTION SYSTEMS:

The following items of woodwork room machinery are approved by the DoES as requiring dust extraction:

- Circular Saw
- Planer /Thicknesser
- Band saw
- Sander

For safety reasons the following will apply:

- Under no circumstances shall sanders be connected to a centralised dust extraction system.
- Extraction shall not be provided from items of equipment that are not listed above.
- Sweep up points shall not be provided on centralised dust extraction systems.
- Mechanical extraction via attachments from power hand tools shall not be provided.
- Manufacturers filter bags and personal filter masks should be used in conjunction with powered hand tools.

## 3. MACHINES:

School authorities will be responsible for purchasing new machines and having them installed by others.

The supply and installation of new machines shall not form part of the contract for the provision of dust extraction systems in schools.

## 4. TYPES OF SYSTEMS:

An integral system, a local extraction system, a centralised extraction system or a combination of these may be used to control dust levels from the listed woodworking machines.

In new post primary schools where [Wood/Technology Machine and Preparation Rooms](#) are provided to accommodate circular saws, band saws and planer/thicknessers centralised dust extraction systems shall be provided to extract dust from these machines. The dust collection unit shall be located in this room as outlined on the DoES floor plan drawing for [Wood/Technology Machine and Preparation Rooms RT - 021](#).

Band saws in adjacent [Construction Studies and/or Technology Rooms](#) shall also be connected to centralised dust extraction systems.

Sanders with integral dust extract systems or local dust extraction systems that can be connected to the sanders shall be provided.

In existing post primary schools the condition of existing machines and their suitability for connection to a dust extraction system needs to be investigated and checked at an early stage in the process.

Where individual machines are old and don't have CE conformance marks i.e. certification that the machine meets EU consumer Safety, Health or Environmental Requirements or the necessary dust extraction connections, consideration should be given to upgrading these prior to a decision being made on the preferred types of dust extraction systems for the school.

### 4.1 INTEGRAL DUST EXTRACTION SYSTEMS:

Integral dust extraction systems comprise of fan/filter collection units incorporated into the machinery.

Sanders can be obtained complete with integral dust extract systems containing fan, filter, and dust collection compartment.

Circular saw run-on tables can be obtained that incorporate dust extraction fans, filters and collection units within the space below the tables.

Note that the DoES requires the addition of run-on tables to circular saws irrespective of the type of system installed.

Integral dust collection units should incorporate safe and easy means of emptying the collected dust, preferably by the use of integral bags.

### 4.2 LOCAL DUST EXTRACTION SYSTEMS:

Where integral dust extraction cannot be incorporated within machines such as the Planer/Thicknesser and the Band Saw a local dust collection system may be provided.

A local dust collection system comprises of a fan and filter collection unit mounted adjacent to a single item of machinery and connected to dust outlets on the machinery via short runs of solid or flexible ductwork.

The local fan and filter collection unit may take the form of a mobile drum or other collection unit housing containing motors, impellers, filters and collection section. Dust may be collected directly within the unit casing or within a bag or cardboard box (easier for emptying) mounted within the unit casing.

These units can usually be plugged into a local 13A socket outlet when in use and should be disconnected and placed in storage if necessary when not in use. Likewise they can be incorporated into the built in furniture depending on room layout.

Where flexible ductwork is used for connections between a local collection unit and an item of machinery, wire reinforced transparent plastic is preferred since this allows the dust to be seen as it passes through the system. This will help identify occurrences of low airflow, which could be caused by blockages or dirty filters.

Local dust collection units should incorporate safe and easy means of emptying the collected dust, preferably by the use of integral bags.

The noise produced by local collection units should not cause the overall noise level in the room to exceed the allowable limit.

Mobile extraction units should be positioned such that the flexible duct does not create a trip hazard.

Also, mobile extraction units and associated flexible ducts should be stored away from circulation routes.

Purpose made trolleys can be obtained to assist with moving mobile dust collection units where appropriate.

### 4.3 CENTRALISED DUST EXTRACTION SYSTEMS:

A centralised system comprises of a large lockable centrally located fan and filter collection unit, which is connected to a system of distribution ductwork. This ductwork is generally routed at high level through the [Construction Studies/Materials Technology Room](#) and/or the [Wood/Technology Preparation Room](#) with branch ducts dropping to each item of equipment.

Copies of the relevant DoES room layout drawings [RT - 019 & 021](#) are available on the Department's website [www.education.ie](http://www.education.ie).

Centralised collection units can be supplied and installed in a number of different arrangements, as outlined below:

- **INDOOR UNIT RE-CIRCULATING TO THE ROOM:**

Filter media is left exposed to the room and the filtered air is allowed to return to the workspace.

- **INDOOR UNIT DUCTED TO OUTSIDE:**

If the upper half of the collection unit containing the filters is covered with a galvanised steel casing, then the filtered air can be ducted to outside.

An additional louver is required in an external wall for fresh air to enter the space to replace the extracted air.

- **INDOOR UNIT FULLY ENCLOSED:**

If the unit is fully enclosed with a galvanised steel case, then the unit is completely protected from physical damage.

This option includes opening doors on the lower half of the unit to facilitate the removal of dust collection bags.

- **EXTERNAL UNIT:**

This unit is encased in galvanised steel and weather proofed.

If possible it should only be used as a last option due to the possibility of vandalism and long-term weather fatigue.

The recommended approach is to duct the exhaust air to outside of the building, and provide suitable paths for fresh replacement air to enter the room.

This approach will promote effective ventilation of the [Construction Studies/Material Technology Room](#) and/or the [Wood/Technology Preparation Room](#) and will control the level of fumes from the wood and machinery during use.

Where exhaust air is discharged to outside the building consideration must be given to possible cooling effects of the replacement air during cold spells. The heat emitters in the [Construction Studies/Material Technology Rooms](#) and [Wood/Technology Preparation Rooms](#) are not and should not be designed to have sufficient spare capacity to offset the dust extraction ventilation load.

The possible cooling effect can be overcome by incorporating a re-circulating damper in the system for use during cold spells. Adjustment of the re-circulation damper would allow a proportion of the filtered air to return to the room mixed with the fresh air.

Dampers shall be mounted a minimum of 1.6m above floor level and where appropriate shall be orientated to avoid hazards to users etc.

Where a centralised dust extraction system is installed, machines other than those approved shall not be connected to the system. These include equipment such as lathes, routers, and miscellaneous powered hand tools.

Sanders must not under any circumstances be connected to a centralised dust extraction system.

Sweep up points should not be connected to or provided on a centralised dust extraction system in post primary schools as they can be abused resulting in the collection of nails and other heavy items that can damage collection machinery and pose a fire risk within the collectors.

## 5. DESIGN CRITERIA:

The following design issues need to be considered. In particular Appendix D which details typical layouts for the various options and the connections to the machines should be noted.



## 5.1 DUST LEVELS:

Occupational exposure limits for woodwork dust are given in the Guidelines to the Safety, Health and Welfare at Work (Chemical Agents) Regulations, 2001 and the associated 2002 Code of Practice for the Safety, Health & Welfare at Work. The existing occupational exposure limit (8hour reference period) is quoted at 5mg/m<sup>3</sup> of respirable particulate matter and a total inspirable particulate matter of 10mg/m<sup>3</sup> for soft-wood and hard-wood dust.

Respirable dust is dust in the particle size range (aerodynamic diameter < 10µm) which allows the dust to reach the depths of the lungs and penetrate the small cavities of the lungs.

Total inspirable dust is all of the dust, which can be breathed in through the mouth and nose during breathing; some of this dust fraction can get trapped in the nose, mouth and upper respiratory tract.

## 5.2 EXTRACT AIR VOLUME FLOW RATES:

The manufacturer of the woodwork machinery should be consulted for advice on the design air volume flow rate to be extracted from each machine.

Details of the existing woodwork machinery should be obtained to ascertain the required extraction air volume flow.

Typical air flow rates are as follows:

Planer	1450 m <sup>3</sup> /h
Circular Saw	1450 m <sup>3</sup> /h
Band Saw	1200 m <sup>3</sup> /h

When establishing the total extraction volume flow rate for a centralised system serving a number of machines, it should be remembered that not all machines may be in use simultaneously and therefore an allowance for diversity of use may need to be made.

The CIBSE guide recommends air velocities of 17 to 20m/s in dust extraction system ductwork. This is to ensure that the dust particles remain entrained in the air stream as they pass through the ductwork system.

## 5.3 CONNECTIONS TO MACHINES:

The effectiveness of the dust extraction process is very much dependent on the design of the extraction hood connecting to the machine and in particular, the integrity of the seal between the hood and the machine.

It is difficult to achieve fully effective extraction if the design of the machine does not allow an airtight connection to be made to the dust collection hoods. Gaps around the dust collection hoods allow room air to enter the collector in favour of dust-laden air from the woodworking process, thus greatly reducing the performance of the extraction.

The more modern wood working machines incorporate purpose designed extraction connections, which perform well in capturing the dust, generated.

With older machines, attention may need to be given to improving the sealing of the dust collection chamber or hood.

Only connection holds that comply with the manufacturer guidelines should be used.

### 5.3.1 PLANER:

The planer can be used for two operations, top planning and undercutting (or thickening). In the case of top planning the dust collector is placed beneath the cutting tool. For the undercutting operation, the dust collector is placed at the machine guard above the cutting tool.

Modern planers are fitted with guards that are designed specifically for the fitting of dust extraction systems.

### 5.3.2 BAND SAW:

One connection is made to the dust collection chamber below the band saw.

### 5.3.3 CIRCULAR SAW:

Dust extraction from the circular saw is required at two locations on the machine. One connection is made to the dust collection chamber below the circular saw. The second connection is made to the guard above the blade.

When integral dust extraction is used, a vertical duct is required to be run alongside the machine to connect the extraction unit to the top of the machine guard.

With centralised systems, this vertical duct is required to connect the under-saw collector to the high level ductwork.

Whichever system is used, it is important that the vertical duct:

- Does not obstruct the cutting of 2400 x 1200mm sheets.
- Is rigid and securely fixed at high and low level.

It is essential that connections made to existing wood cutting machine guards do not compromise the guards' safety. Existing damaged guards must be replaced.

## 5.4 NOISE LEVELS:

The Health & Safety Authority require the Daily Personal Noise Exposure Level to be under 85dB if sound reduction measures (such as earplugs/muffs) are not used.

The school authorities should ensure hearing protection in the form of earplugs/muffs or equivalent is available and is used when noisy equipment is in use for long periods.

In rooms where the fire alarm can not be heard clearly over the operation of the machines a visual flashing beacon shall be provided on the fire alarm installation in the room.

## 5.5 POSITIONING OF WOOD WORKING MACHINES:

The layout of existing equipment needs to be analysed to ensure that adequate clearance is available after the dust extraction system is installed.

If it is necessary to make adjustments to the positions of existing machinery to accommodate extraction units, consideration should be given to any affects this may have on power supplies and floor finishes.

In new schools, the location of equipment shall comply with the Department's room layout drawings.

## 5.6 CONTROL SYSTEMS:

All dust extraction systems must be capable of being switched “On” or “Off” from within the teaching space.

The power supply to all dust extraction systems in teaching spaces must be controlled by the local key operated isolating switch controlling the power to the machines and socket outlets in the individual teaching space or room. This will automatically isolate systems in the event of either of the two emergency knock off buttons being activated.

Where possible the operation of the dust extract system should be interlocked with the operation of the woodworking machines.

Emergency controls including foot stops should be added to machines where they have not already been fitted.

## 6. DISTRIBUTION SYSTEMS:

Ductwork shall comply with the HVAC Specification DW/144 for sheet metal ductwork.

Ductwork should be installed in a neat and workmanlike manner. With centralised systems, careful consideration shall be given to establishing the exact routing of the high level distribution ductwork and full account shall be taken of positions of other services such as pipe work, other ductwork, trunking, cable tray, light fittings, data projectors and white boards etc.

Account shall also be taken of building features such as roof lights, down stand beams, bulkheads, etc. The aim shall be to achieve a well co-ordinated solution that does not impart an industrial appearance on the room.

Fire compartmentation within the school should not be breached by extraction ductwork. Fire dampers must not be fitted on extraction systems.

Particular attention should be made to the durability, routing and supporting of all ductwork within 2.0 metres of the floor level. Such ductwork shall:

- Not impede views of the black/white boards at the teacher’s base
- Not be run between ceiling mounted data projectors and associated screens on the teaching wall
- Not impede the safe and proper use of the machinery
- Not restrict the size of normally used timber sheets or lengths
- Be rigidly supported, not present a trip hazard and be free of sharp edges

Horizontal runs of ductwork at low level should be kept to a minimum and shall be run as tightly as possible to the machinery and adequately protected.

Routing ductwork under the floor is not favoured since this may create difficulties in cleaning dust from inside the duct. Also, in many existing woodwork rooms, the provision of a duct in an

existing floor would have significant implications on damp proof membranes, floor finishes etc.

Where ductwork support steelwork is fixed to the floor, the fixings shall not present a trip hazard and shall be free of sharp edges.

Flexible ducts between extraction systems and machinery are required to control vibration and to enable final connections to be easily disconnected for maintenance or operational reasons. These should be kept as short as is reasonably practical, and should include quick fit connections to all hoods or machinery connections.

Long radius fittings should be used at bends and branches to reduce air resistance and avoid blockages.

Access doors should be provided in the ductwork at all changes of direction and any low points where dust may gather.

On/Off manual isolating dampers on branches to individual machines shall be mounted within easy reach of each machine and shall be 1.6 metres above floor the finished floor level.

## **7. ELECTRICAL SERVICES:**

All electrical systems shall be designed, installed, and commissioned in accordance with the E.T.C.I. National Rules for Electrical Installations.

Where dust extraction is being provided in existing teaching spaces a survey of the existing electrical installations should be carried out to identify any modifications or additions required to facilitate the provision of power supplies to the new dust extraction equipment.

In the case of the circular saw and planer, these machines are usually located away from walls and are fed by cables through buried conduit. It may be possible to route a new power supply to a new local extraction unit through the existing conduit.

Where existing 3-phase machines are being replaced it may be feasible to retain the existing wiring and isolating switch and connect the new machines to these.

Where new power supplies are required for new machines conduits shall not be run across the floor surface as these will contribute to Health & Safety problems for the school. Where necessary the floor should be chased to accommodate any new conduit runs from local sub-boards.

Where necessary, Emergency Foot Stops should be fitted to existing machines.

Where integral or local dust extract systems are provided, the operation of the dust extract fan should be interlocked with the operation of the woodworking machine.

In Construction Studies/Woodwork Rooms where the noise levels from existing machines and any dust extraction installation will make it difficult to hear the fire alarm, a flashing light shall be added to the fire alarm installation in the room to give a visual fire alarm indication.

## 8. NATURAL VENTILATION:

A minimum amount of fresh air should always be available in [Construction Studies/ Materials Technology Room](#) and the [Wood/Technology Preparation Room](#) when these teaching spaces are occupied.

In existing schools the natural ventilation levels available in these spaces must be checked for compliance with the Department's guidelines and that they are adequate to dilute any fine dust concentrations in the air.

Where natural ventilation needs to be improved the Building Services Consulting Engineer shall buy in the services of an Architect to advise him on the scope and extent of any architectural works required. For example new high level windows may be required to improve natural ventilation levels.

Any architectural works identified should be incorporated into the tender documents for the provision of the dust extraction systems.

## 9. INSPECTION, TESTING & COMMISSIONING:

When the installation of the dust extraction systems has been completed, the Building Services Consulting Engineer shall inspect the equipment in operation and advise the Contractor of any defects.

Commissioning of installations should be carried out in accordance with the procedures, checks and tolerances given in the BSRIA Application Guides for air systems to achieve the standards set in the CIBSE Commissioning Codes.

Preliminary checks and procedures should be performed, as detailed in CIBSE Commissioning Code A, Section A1. The pre-commissioning checklist in the current edition of the BSRIA Application Guide should be applied.

It should be ensured that the system is statically complete as defined in Section B4 of the most recent edition of the BSRIA Application Guide, Commissioning of air systems in buildings.

All ductwork should be cleaned before plant is first run, using access openings in ductwork.

The air distribution systems should be set to work and regulated in accordance with CIBSE Commissioning Code A, Section A2, and Sections C3, C4 and C5 in the current edition of BSRIA Application Guide 3/89.

Measurements of the duct and hood velocities should be taken to check if the equipment installed is drawing the correct amount of air through the system.

Instruments for measurement and methods of measurement should be as detailed in the current edition of the BSRIA Application Guide and CIBSE commissioning guide, section A3.

The manufacturers' recommendations for setting to work should also be fully complied with.

A Commissioning Test Sheet as per [Appendix B](#) below shall be completed for each individual dust extraction system provided in the school and should provide a systematic and numerical record of commissioning results.

One copy of each completed test sheet shall be handed over to the school authority for its records.

## 10. TRAINING & DEMONSTRATION:

Upon completion of the dust extraction installation, a certificate as per [Appendix C](#) below should be completed to verify that the system had been demonstrated to the users and that instruction manuals have been issued to the School Principal. Each certificate should be signed and dated by the School Principal and by the Building Services Consulting Engineers.

It is essential that users be taught to operate the filter shakers after each machine operation as this has a significant effect on dust extraction efficiency.

On completion of the works and prior to any training or demonstrations the school authority should be provided with an [Operating and Maintenance Manual](#), which clearly indicates all aspects of operating the equipment and sets out the procedures for routine maintenance. The manual should include contact details for suppliers of replacement parts.

A set of spare collection bags should also be handed over to the School Principal upon completion, along with contact details on where such bags can be purchased.

A laminated wall chart shall be provided explaining common operating/maintenance procedures to be followed such as filter shaking, filter replacement etc.

## **11. APPENDIX A: QUESTIONNAIRE**

## QUESTIONNAIRE

The purpose of this questionnaire is to assist School Principals and Construction Studies/Woodwork Teachers in existing schools in assessing which type of dust extraction best suits the schools needs.

It is not exhaustive as each school may have individualist circumstances on site.

It addresses common issues under three headings namely, Woodworking Machines, Room Layouts & Available Locations for Extraction Equipment, Associated Services.

### WOODWORKING MACHINES:

#### 1. How many of the following items of equipment have the school got in each Construction Studies/Material Technology Room?

Circular Saw .....

Planer.....

Band saw.....

If the room only contains one of the first three items of equipment it is likely that a small local collector will be the optimum choice.

If the room contains all three items a central system may be appropriate if all requirements are suitable.

#### 2. How frequently are the machines used and for what duration?

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*If machines are not often used then there will not be a requirement for large collection bags (or multiple bags) to be incorporated within the central system design thus only requiring a more compact system.*

#### 3. Is the existing equipment suitable for connection to an extract system?

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It is more difficult to successfully extract dust from older equipment. Where individual machines are old and don't have British Standards Kitemarks/CE Marks consideration should be given to upgrading these.

**4. If there is an existing circular saw, does it have a run on table? If not, is there room to install one without moving the saw?**

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All circular saws must have run on tables regardless of type of extraction system.

**ROOM LAYOUTS AND AVAILABLE LOCATIONS FOR EXTRACTION SYSTEMS:**

**1. How many Construction Studies/Material Technology Rooms are there in the school?**

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Ideally for control and elimination of noise transfer each teaching space should have its own extraction system.

Central dust extraction systems should not be shared between teaching spaces.

**2. Is there a separate Wood Preparation Area?**

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If so could it used to accommodate the selected extract system?

**3. Is the school prone to vandalism?**

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If yes then an external centralised dust collection unit should be avoided.

- 4. Is it possible to meet the requirements for safely connecting extract ductwork to the circular saw in your particular room layout?**

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If no then consideration should be given to an integral system in the run on table.

**ASSOCIATED SERVICES:**

- 5. Is there an adequate and easily available electrical supply for the favoured system?**

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If no then is it better to reconsider the options.

- 6. Is there sufficient headroom in the teaching space to distribute metal ductwork around the room to each machine?**

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If no integral or local dust extraction systems should be considered.

## **12. APPENDIX B: COMMISSIONING TEST SHEET**

## COMMISSIONING TEST SHEET

<b>School:</b>						
<b>Room:</b>						
<b>Machines:</b>						
<b>System Schematic</b>						
Measurement Point Reference	Duct Size (mm)	Design Volume (m <sup>3</sup> /s)	Design Velocity (m/s)	Measured Velocity (m/s)	Measured Volume (m <sup>3</sup> /s)	% Design


**Signed:** **Commissioning Engineer** **Date:**

**Witnessed:** **Project Engineer** **Date:**

**Consulting Engineers:**

## **13. APPENDIX C: COMPLETION RECORD SHEET**

## COMPLETION RECORD SHEET

<b>School Name:</b>		
<b>Address:</b>		
<b>Room:</b>		
		<b>Project Engineer's Signature</b>
Dust extraction equipment installed, tested and operating satisfactorily		
Ductwork system installed, tested and operating satisfactorily		
Electrical wiring and controls installed, tested and operating satisfactorily		
Dust extraction equipment demonstrated to user		
Operating & Maintenance Manuals handed over to user		
Spare dust collection bags handed over to user and contact details provided for ordering extra bags.		
Wall chart provided, explaining common operating/maintenance procedures.		
<b>School Principal Name:</b>	<b>Signed:</b>	<b>Date:</b>
<b>Woodwork Teacher Name:</b>	<b>Signed:</b>	<b>Date:</b>
<b>Consulting Engineer's Name:</b>	<b>Signed:</b>	<b>Date:</b>

## **14. APPENDIX D: SCHEDULE OF DRAWINGS**



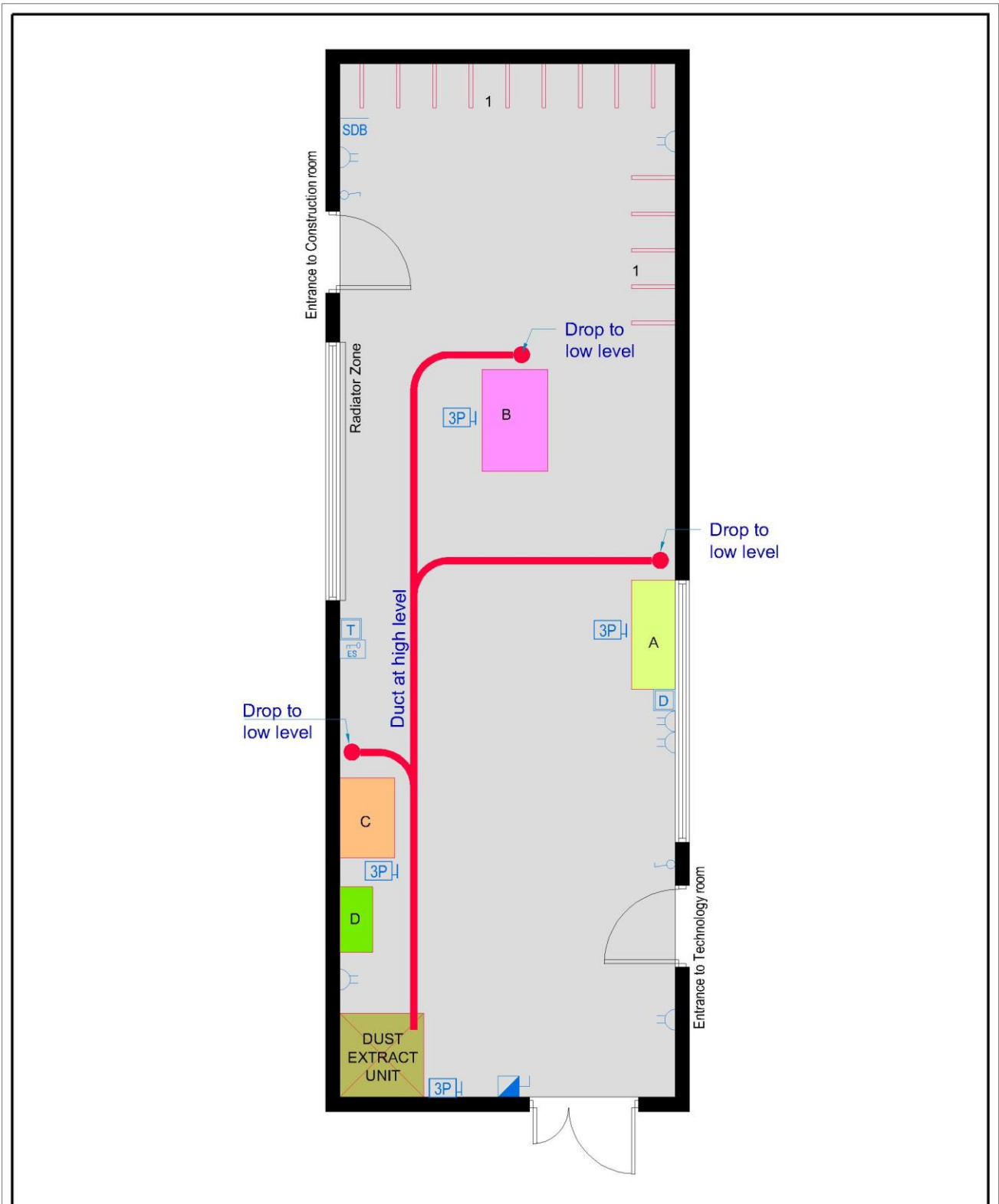
## Schedule of Drawings

### Centralised Woodwork Dust Extraction:

<b>RT - DEX - 001</b>	Installation in Wood/Technology & Machine Preparation Area (RT – 021)
<b>RT - DEX - 002.1</b>	Internal Collection Unit
<b>RT – DEX - 002.2</b>	External Collection Unit
<b>RT - DEX - 003</b>	Circular Saw Ductwork Connections
<b>RT - DEX - 004</b>	Planer Ductwork Connections
<b>RT - DEX - 005</b>	Band Saw Ductwork Connections

### Local Woodwork Dust Extraction:

<b>RT - DEX - 006</b>	Circular Saw Ductwork Connections
<b>RT - DEX - 007</b>	Planer Ductwork Connections
<b>RT - DEX - 008</b>	Band Saw Ductwork Connections



- GENERAL NOTES:
1. PROVIDE VOLUME CONTROL DAMPER ON ALL DUCT DROPS AT 2.0m ABOVE FLOOR LEVEL
  2. PROVIDE WALL CHART EXPLAINING MAINTENANCE PROCEDURES.

TGD-032:

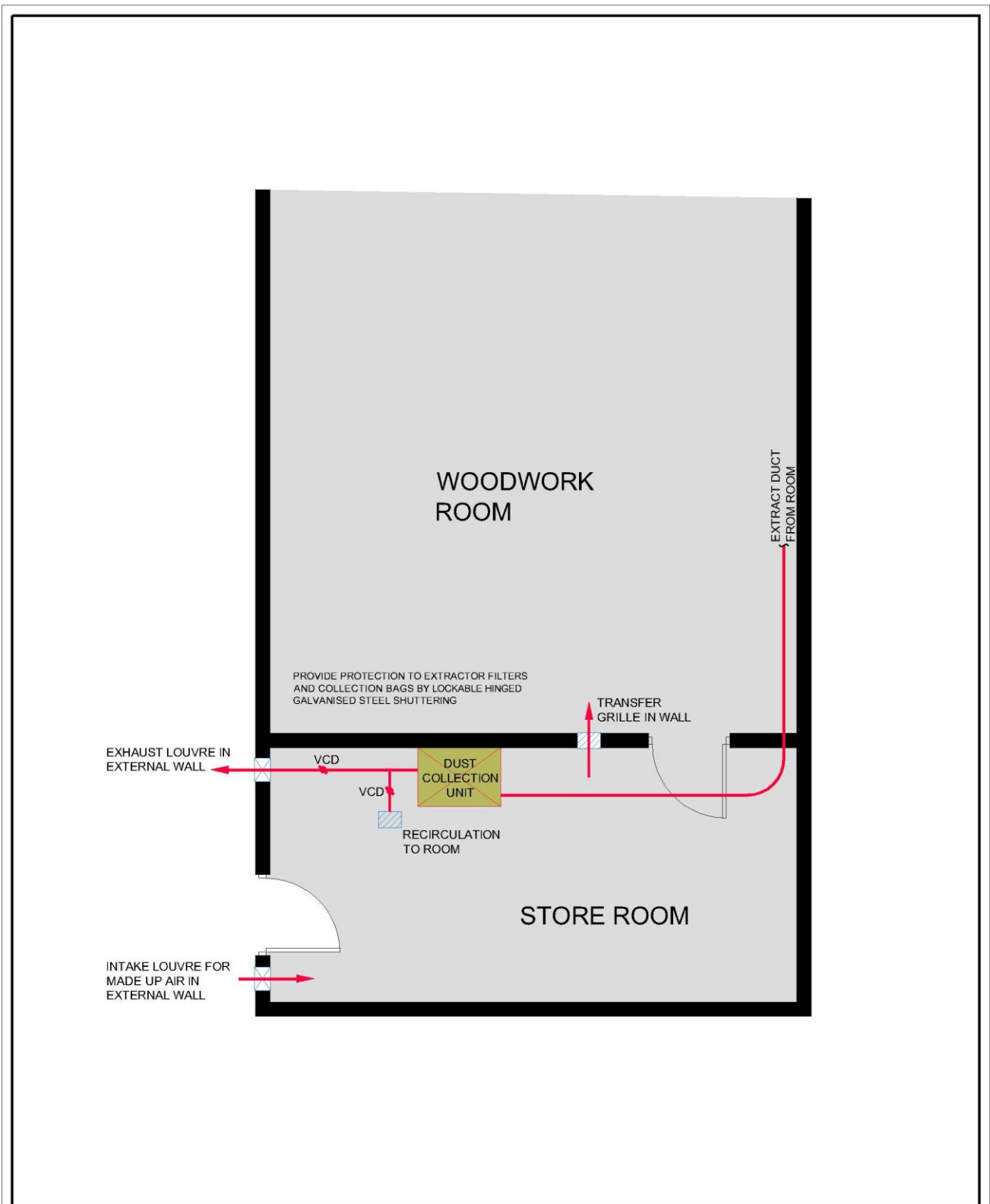
**CENTRALISED DUST EXTRACTION  
INSTALLATION IN WTMP AREA (RT-021)**

DRG NO: <b>RT-DEX-001</b>	ISSUE NO: <b>01</b>	SCALE: <b>NTS</b>	DATE: <b>Nov 2011</b>
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SCILEANNA  
THE DEPARTMENT OF EDUCATION  
AND SKILLS**

**Planning and Building Unit**





GENERAL NOTES:  
 1. PROVIDE WALL CHART EXPLAINING MAINTENANCE PROCEDURES.

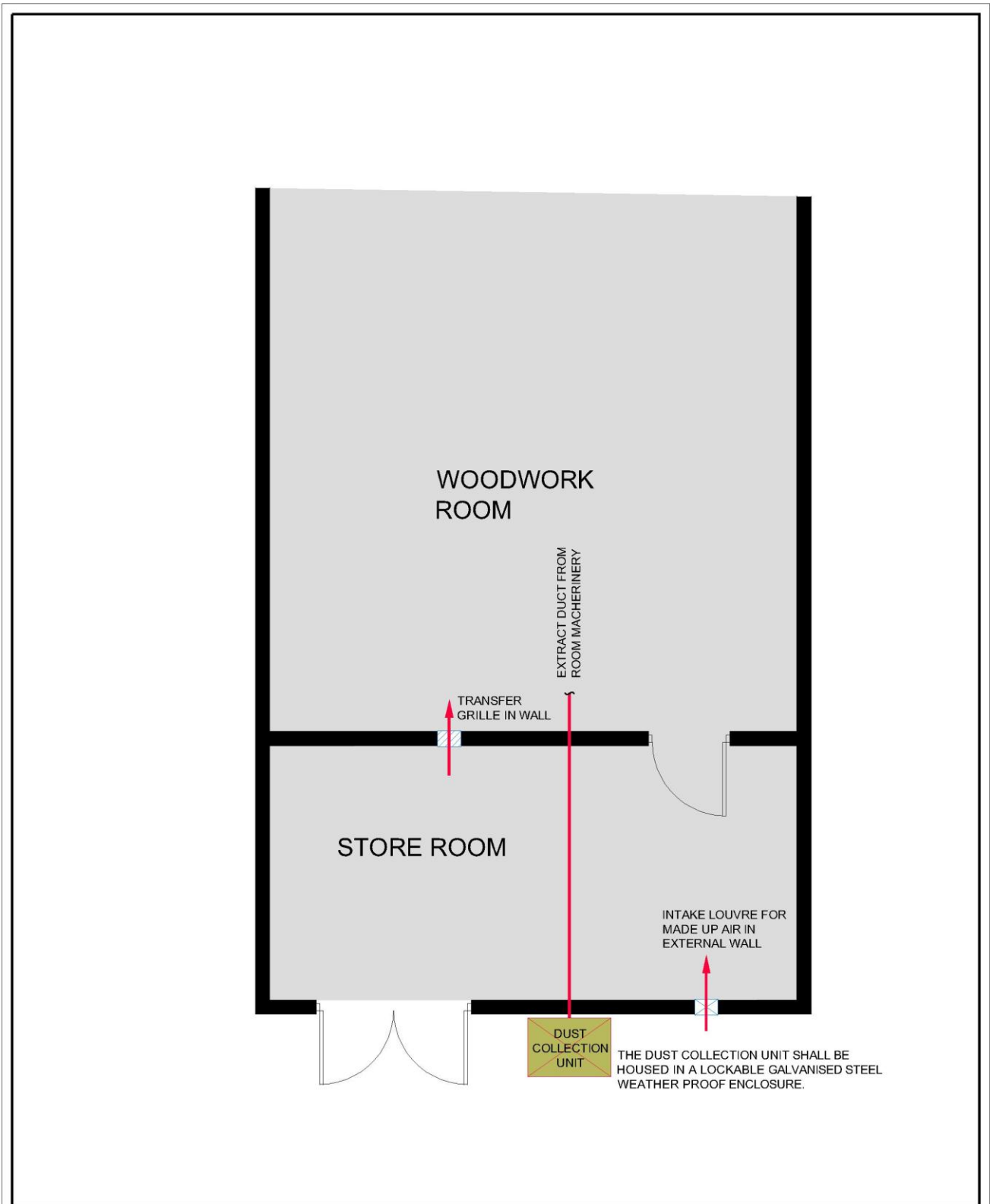
TGD-032:

**CENTRALISED WOODWORK DUST EXTRACTION - INTERNAL COLLECTION UNIT**

DRG NO: <b>RT-DEX-002.1</b>	ISSUE NO: <b>01</b>	SCALE: <b>NTS</b>	DATE: <b>Nov 2011</b>
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**AN ROINN OIDEACHAIS AGUS SCILEANNA  
 THE DEPARTMENT OF EDUCATION AND SKILLS**

**Planning and Building Unit**



GENERAL NOTES:  
 1. PROVIDE WALL CHART EXPLAINING MAINTENANCE PROCEDURES.

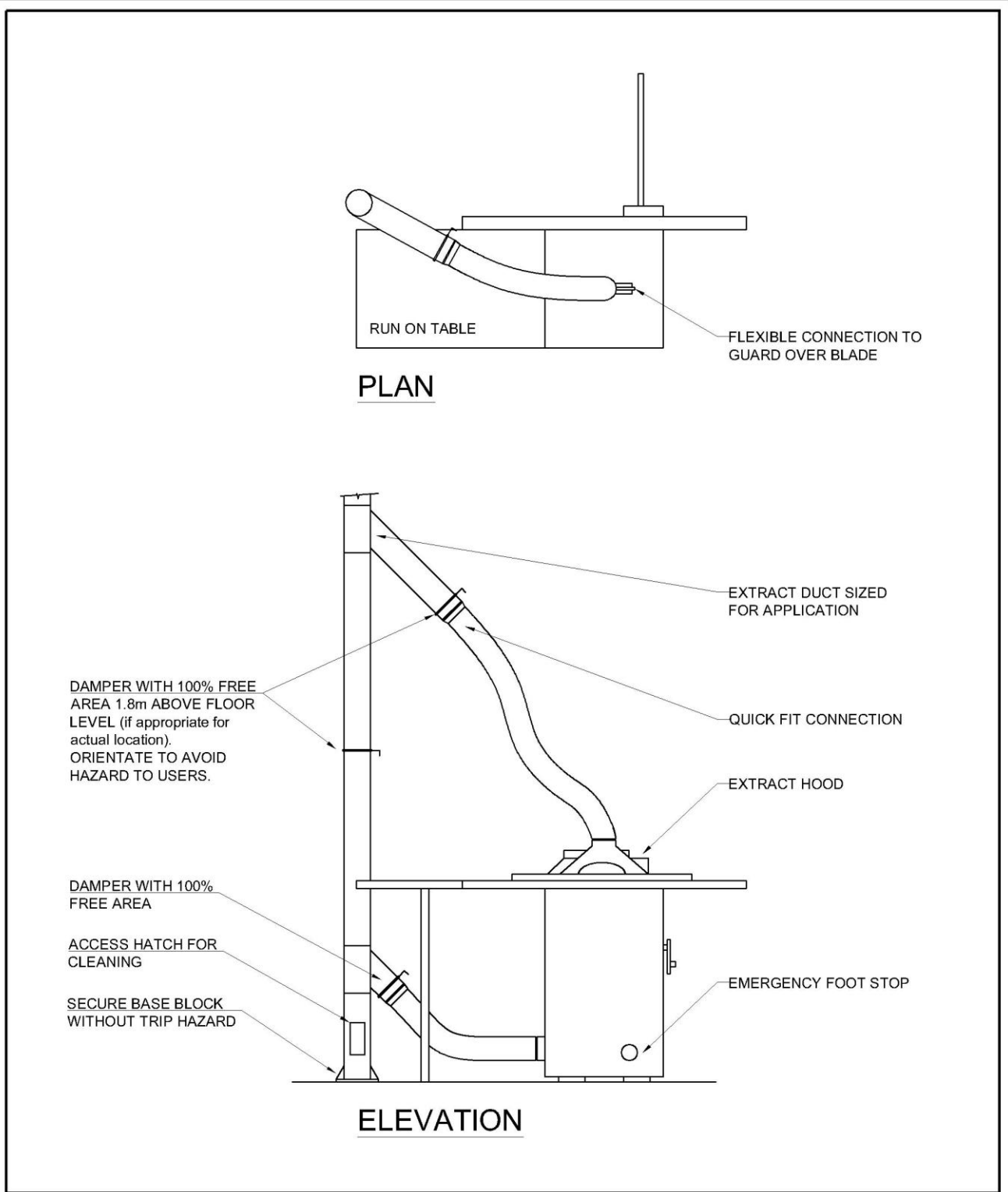
TGD-032:

### CENTRALISED WOODWORK DUST EXTRACTION - EXTERNAL COLLECTION UNIT

DRG NO: <b>RT-DEX-002.2</b>	ISSUE NO: <b>01</b>	SCALE: <b>NTS</b>	DATE: <b>Nov 2011</b>
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**AN ROINN OIDEACHAIS AGUS SCILEANNA**  
**THE DEPARTMENT OF EDUCATION AND SKILLS**

**Planning and Building Unit**



**GENERAL NOTES:**

1. DRAWING TO BE READ IN CONJUNCTION WITH ALL OTHER DRAWINGS & SPECIFICATIONS.
2. IF THE MACHINE IS LOCATION BESIDE A WALL THE VERTICAL DUCT MAY BE WALL MOUNTED AND THE FLOOR SUPPORT MAY BE OMITTED.
3. POSITION THE VERTICAL DUCT TO AVOID OBSTRUCTION THE CUTTING OF 8' x 4' SHEETS.

TGD-032:

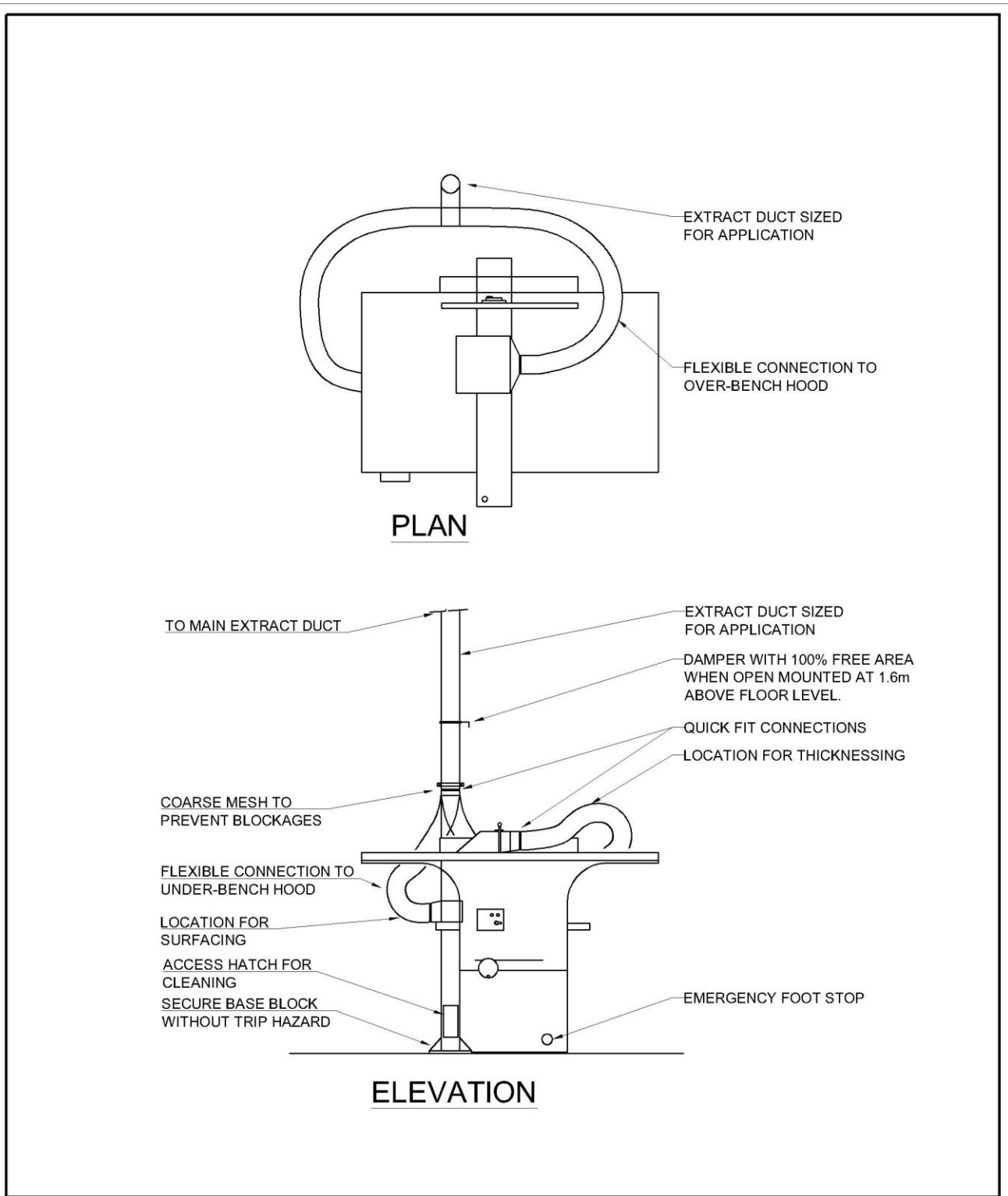
**CENTRALISED WOODWORK DUST EXTRACTION**  
**Circular Saw Ductwork Connections**

DRG NO: <b>RT-DEX-003</b>	ISSUE NO: <b>01</b>	SCALE: <b>NTS</b>	DATE: <b>Nov 2011</b>
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**THE DEPARTMENT OF EDUCATION AND SKILLS**

**Planning and Building Unit**

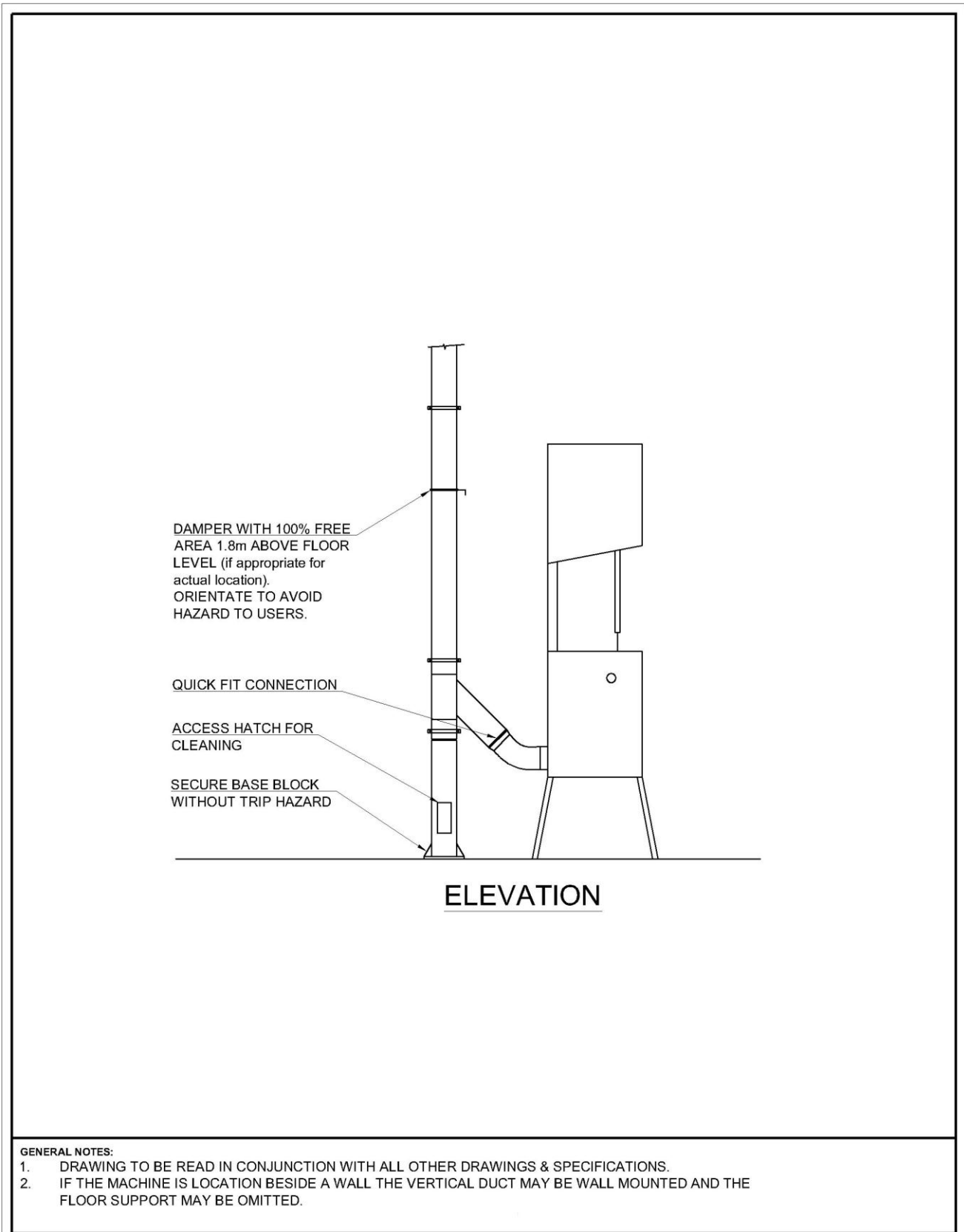




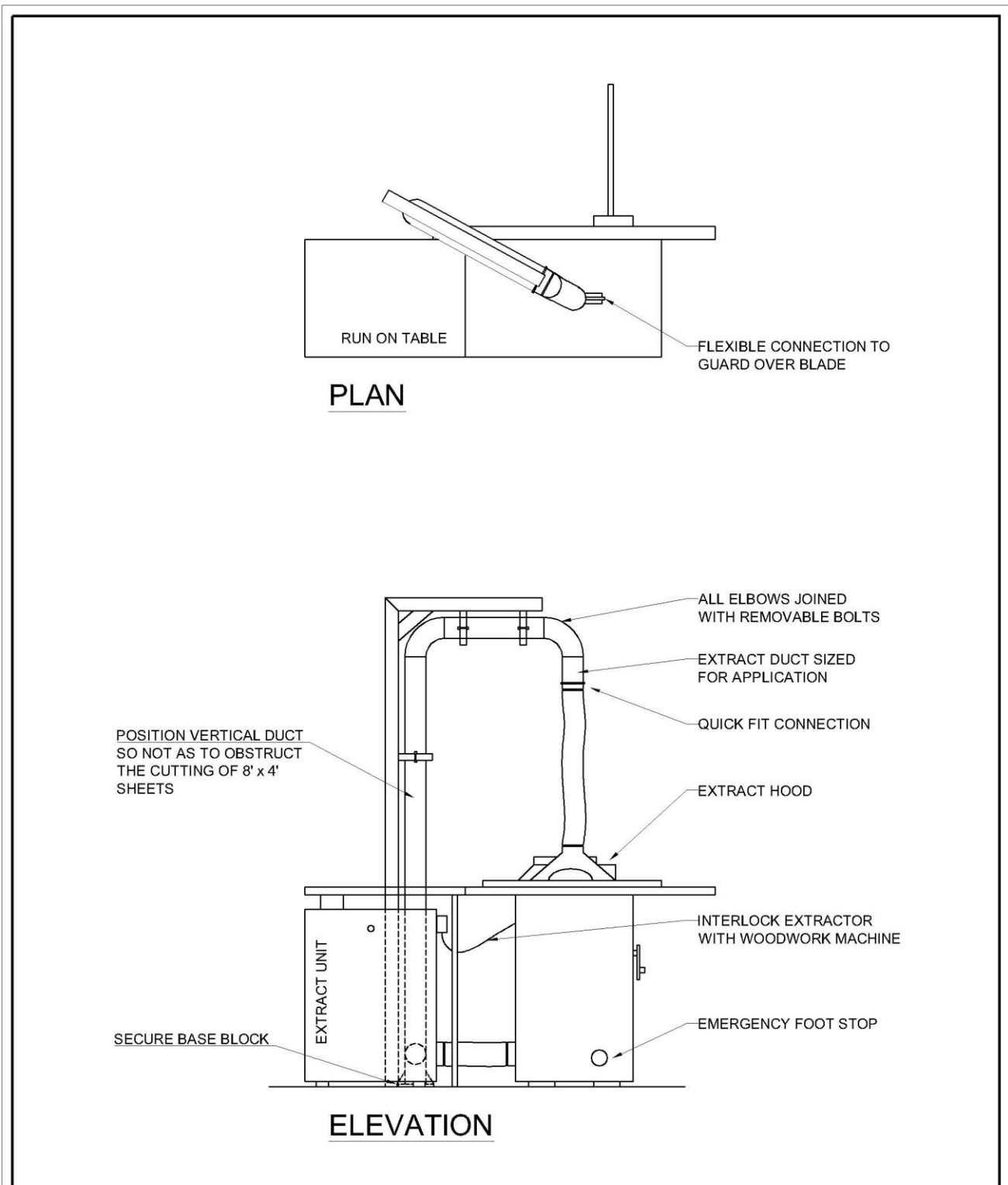
**GENERAL NOTES:**

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2. IF THE MACHINE IS LOCATION BESIDE A WALL THE VERTICAL DUCT MAY BE WALL MOUNTED AND THE FLOOR SUPPORT MAY BE OMITTED.

<p>TGD-032:</p> <h2 style="margin: 0;">CENTRALISED WOODWORK DUST EXTRACTION</h2> <h3 style="margin: 0;">Planer Ductwork Connections</h3>				<p style="margin: 0;">AN ROINN OIDEACHAIS AGUS SCILEANNA</p> <p style="margin: 0;">THE DEPARTMENT OF EDUCATION AND SKILLS</p> <p style="margin: 0;"><b>Planning and Building Unit</b></p>	
<p>DRG NO:</p> <p><b>RT-DEX-004</b></p>	<p>ISSUE NO:</p> <p><b>01</b></p>	<p>SCALE:</p> <p><b>NTS</b></p>	<p>DATE:</p> <p><b>Nov 2011</b></p>		



<p>TGD-032:</p> <p style="text-align: center;"><b>CENTRALISED WOODWORK DUST EXTRACTION</b></p> <p style="text-align: center;"><b>Band Saw Ductwork Connections</b></p>				<p><b>AN ROINN OIDEACHAIS AGUS SCILEANNA</b></p> <p><b>THE DEPARTMENT OF EDUCATION AND SKILLS</b></p> <p><b>Planning and Building Unit</b></p>	
<p>DRG NO: <b>RT-DEX-005</b></p>	<p>ISSUE NO: <b>01</b></p>	<p>SCALE: <b>NTS</b></p>	<p>DATE: <b>Nov 2011</b></p>		

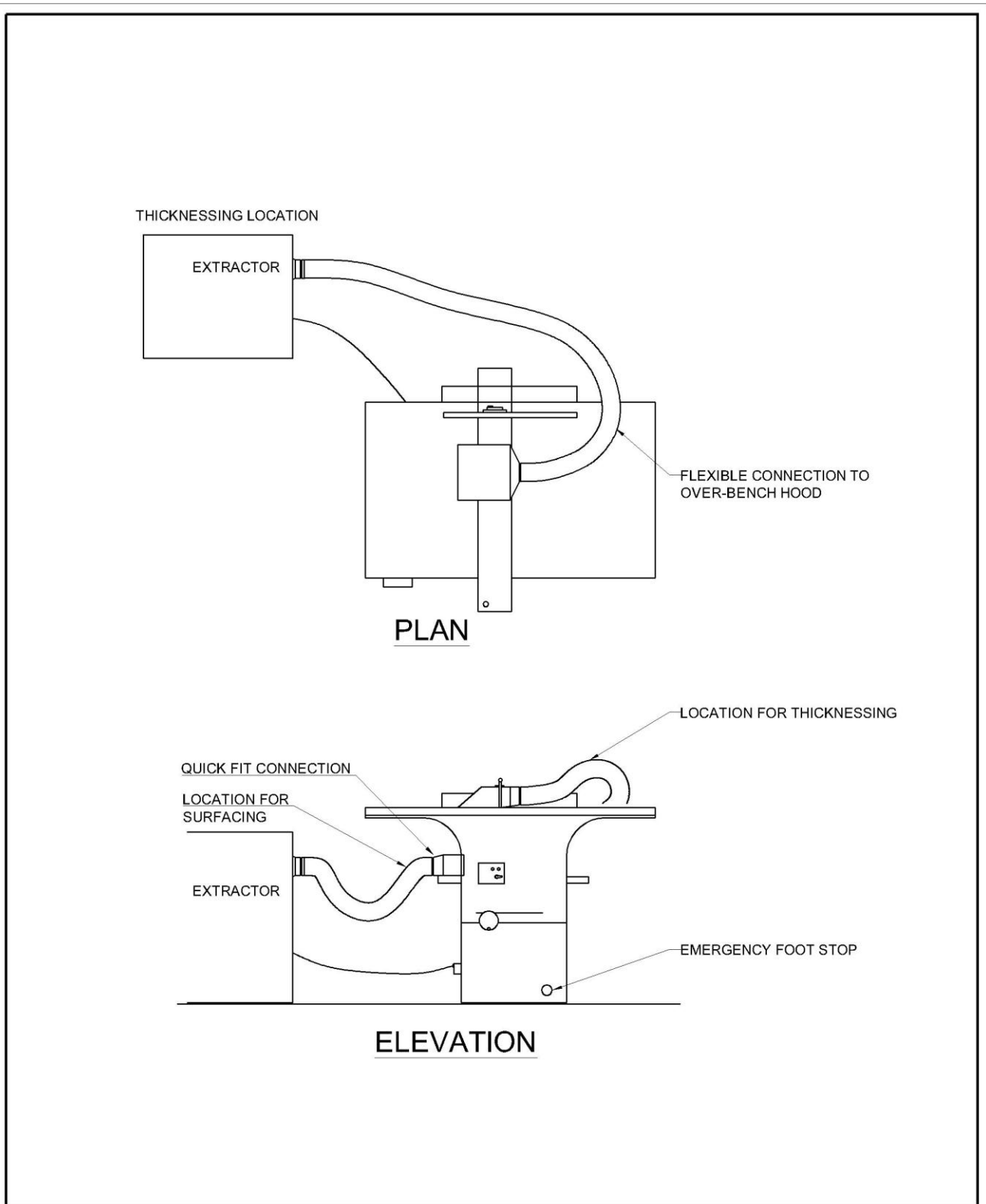


GENERAL NOTES:

1. DRAWING TO BE READ IN CONJUNCTION WITH ALL OTHER DRAWINGS & SPECIFICATIONS.
2. POSITION THE VERTICAL DUCT TO AVOID OBSTRUCTING THE CUTTING OF 8' x 4' SHEETS.

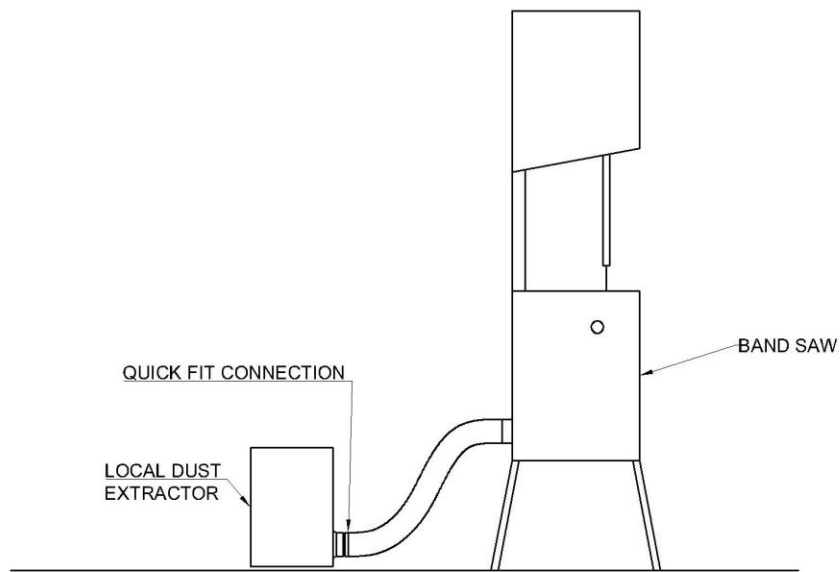
TGD-032: <b>LOCAL WOODWORK DUST EXTRACTION</b> <b>Circular Saw Ductwork Connections</b>				<b>AN ROINN OIDEACHAIS AGUS</b> <b>SCILEANNA</b> <b>THE DEPARTMENT OF EDUCATION</b> <b>AND SKILLS</b>	
DRG NO: <b>RT-DEX-006</b>	ISSUE NO: <b>01</b>	SCALE: <b>NTS</b>	DATE: <b>Nov 2011</b>	<b>Planning and Building Unit</b>	
					





GENERAL NOTES:  
 1. DRAWING TO BE READ IN CONJUNCTION WITH ALL OTHER DRAWINGS & SPECIFICATIONS.

TGD-032: <b>LOCAL WOODWORK DUST EXTRACTION</b> <b>Planer Ductwork Connections</b>				<b>AN ROINN OIDEACHAIS AGUS</b> <b>SCILEANNA</b> <b>THE DEPARTMENT OF EDUCATION</b> <b>AND SKILLS</b>	
DRG NO: <b>RT-DEX-007</b>	ISSUE NO: <b>01</b>	SCALE: <b>NTS</b>	DATE: <b>Nov 2011</b>	<b>Planning and Building Unit</b>	



ELEVATION

GENERAL NOTES:

1. DRAWING TO BE READ IN CONJUNCTION WITH ALL OTHER DRAWINGS & SPECIFICATIONS.

TGD-032:

**LOCAL WOODWORK DUST EXTRACTION  
Band Saw Ductwork Connections**

DRG NO: <b>RT-DEX-008</b>	ISSUE NO: <b>01</b>	SCALE: <b>NTS</b>	DATE: <b>Nov 2011</b>
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**AN ROINN OIDEACHAIS AGUS  
SCILEANNA  
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AND SKILLS**

**Planning and Building Unit**

