

Guidelines on **Quiet Renovation Equipment**



Table of Content

Background	P.2
Concrete Removal	P.3-7
Tile Removal	P.8-10
Coring	P.11-15
Anchor Fixing	P.16-18
Brick Cutting	P.19-21
Channeling/ Grooving	P.22-24
Summary	P.25
Appendix A	P.26-27



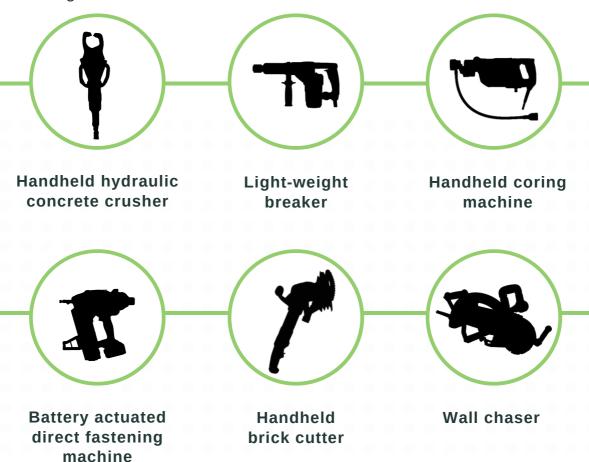
Background

Most people in Hong Kong live in multi-storey buildings where domestic renovations are quite common and can be annoying to neighbouring residents from time to time. To strike a balance between the need for domestic renovations and the protection of the noise environment so as to minimize the noise impact to nearby residents, it is important to establish specific house rules and guidelines for good and quiet renovation practices.

Common noisy renovation activities include demolition of concrete or brick walls, removal of ceramic tiles, hole drilling / indentation, anchor fixing, brick cutting and grooving / channeling, for which current practices usually involve the use of percussive tools. Through the application of specific house rules and guidelines to limit the use of percussive tools and promotion of quiet renovation equipment, excessive renovation noise can be minimized to maintain a good living environment as a whole.

This guidebook introduces the techniques, advantages of the recommended quiet renovation equipment and a list of respective potential suppliers.

Renovation contractors and workers are highly recommended to use quiet renovation equipment listed in this guidebook to help alleviate noise nuisance to affected neighbours.



Concrete Removal

Description

Concrete removal is a common process during renovations, and handheld percussive breakers are often use to demolish concrete walls.

The operation principle of a handheld percussive breaker is by repeatedly striking chisels onto the surface to be demolished. This operation generates excessive noise and vibration, thus giving a significant impact to the neighbours.

Although the use of such tool is low in cost, it causes a greater impact to nearby residents. With increasing quest for a better living environment, a quieter alternative is required to replace the use of conventional handheld breakers.

A handheld hydraulic concrete crusher can be an alternative to a conventional handheld breaker for concrete demolition. The handheld hydraulic concrete crusher is a non-percussive tool that uses a hydraulic jaw to crush concrete, and generates much less airborne and structural-borne noise.

Why does domestic renovation creates such noise nuisance?



Processes involving removal or dismantling of concrete walls/structures.



The common method used in renovation projects invloves percussive tools. As a result, excessive noise and vibrations are generated.



With increasing quest for a better living environment, quieter alternatives are required to reduce noise nuisance to neighbouring residents

Concrete Removal

Conventional Renovation Equipment – Handheld Breaker

Tool Description

There are a variety of handheld breakers with different power output available on the market, catering to different needs.



Technical Specification

CON	Tool	Handheld Breaker
ONVENTIONAL	Application	Remove concrete structure
	Weight	~10kg
	Size (L x W x H)	~600 x 200 x 200mm
	Power	Electric-driven
	Sound Power Level	~108dB(A)
	Accessories	Bull point chisel



Img. 1.1 Using handheld breaker Source: Hilti¹

Operation

Hold the breaker head against the concrete wall/structure and connect the other end to the electric supply. After turning on the electric supply, push the handle sleeve on the concrete wall/structure position to make the impact hammer strike against the concrete surface repeatedly.

Quiet Renovation Equipment – Handheld Hydraulic Concrete Crusher

Tool Description

There are two common types of handheld hydraulic concrete crushers, namely, small hydraulic concrete crushers (with a crushing thickness of 150mm or less) and large hydraulic concrete crushers (with a crushing thickness of 300mm or less), catering to different needs.

Technical Specification

QUI	Tool	Handheld Hydraulic Concrete Crusher
QUIET RENOVATION	Application	Remove concrete of about 250mm thickness or below
	Weight	~20kg
	Size (L x W x H)	~850 x 350 x 200mm
	Sound Power Level	Hydraulic
	SWL	~94dB(A)
	Accessories	Hydraulic power pack













Img.1.2 Using handheld concrete crusher Source: Tehma SA²

Operation

Connect the two pressure ports of the handheld hydraulic concrete crusher to the hydraulic power supply equipment, and then push the handle on the concrete wall/structure position after turning on the hydraulic power supply equipment.

Concrete Removal

Pros and cons of using Hydraulic Concrete Crusher

Adaptation

The handheld hydraulic concrete crusher can be operated by one person. Since the handheld hydraulic concrete crusher does not take up a lot of space during operation, it can be used in narrow or confined spaces. The crushing capacity of the handheld hydraulic concrete crusher depends on the size of the clamp. Generally, concrete walls/structures with a thickness of about 250mm or less can be removed.

Applicability

The crushing capacity of the handheld hydraulic concrete crusher depends on the size of the clamp, the handheld hydraulic concrete crusher is usually used for crushing and removing concrete walls/structure with a thickness of about 250mm or less. The common wall thickness in demolition and reconstruction projects is generally less than 250mm, so such restriction does not affect its use as a broken concrete wall/structure.

Handheld hydraulic concrete crusher needs hydraulic power to operate, a hydraulic power supply equipment needs to be connected before work.

Noise Impact

Compared to handheld breaker, the airborne and structural-borne noise generated by handheld hydraulic concrete crusher is much lower. Since non-impact method is used for crushing, the use of a handheld hydraulic concrete crusher can effectively control noise and dust emission.

Work Efficiency

The work efficiency of the handheld hydraulic concrete crusher is slightly lower than conventional handheld breaker.

Price Range

The price of a handheld hydraulic concrete crusher is about 30,000-50,000 Hong Kong dollars, and the price of a typical handheld breaker is about 2,000-3,000 Hong Kong dollars. The price of handheld hydraulic concrete crusher is more expensive than conventional hand tools for building renovation.

Market Supply

Renovation contractors can easily purchase handheld breakers from local hardware stores. There are a large number of different brands of handheld breakers in stock on the market.

The renovation contractors can order the handheld hydraulic concrete crusher online or through agents. There are several brands available in the market.



Tile Removal

Description

When carrying out refurbishment of the floor/wall, the renovation contractors often use a handheld breaker or hammer to remove existing tiles, and then manually clean the fragments of the tiles. The use of heavy duty handheld percussive breakers generally creates excessive noise and structural-borne noise.



Conventional Renovation Equipment – Handheld Breaker

Tool Description

There are a variety of handheld breakers with different powers on the market, corresponding to different needs.



Technical Specification

CON	Tool	Handheld Breaker
CONVENTIONAL	Application	Remove ceramic tiles
ONA	Weight	~10kg
	Size (L x W x H)	~600 x 200 x 200mm
	Power	Electric-driven
	Sound Power Level	~108dB(A)
	Accessories	Bull point chisel

Operation

Hold the breaker head against the wall/floor tiles and connect the other end to the electricity supply. Push the handle sleeve on the concrete wall/structure position to make the impact hammer strike against the tiles repeatedly.

Quiet Renovation Equipment – Light-weight Breaker

Tool Description

In order to minimize excessive noise during tile removal, it is recommended that light-weight breakers, coupled with chisel, are to be used.

Light-weight breaker coupled with flat-head chisel can remove tiles efficiently by repeatedly striking at the bottom of the tiles at an angle, thereby minimizing induced structural-borne noise.

Changeable accessories are available to cater for various needs and size of the tiles.

Technical Specification

NO IN	Tool	Light-weight Breaker
QUIET RENOVATION	Application	Remove wall/ floor tile
	Weight	~3kg
TION	Size (L x W x H)	~600 x 200 x 200mm
	Power	Electric
Sound Power Level		~102dB(A)
	Accessories	Flat head chisel



Operation

Install the flat head chisel at the front end of the light-weight breaker and press it against the bottom of the tile at an inclined angle.







Img2.3 Using light-weight breaker Source: National Tool Hire Shops

Tile Removal

Pros and cons of using related equipment

Adaptation

Both heavy duty handheld breaker and light-weight breaker with flat chisel are capable of removing tiles. According to different needs, the parts of the light-weight breaker can be replaced and matched to meet the application of different power or tile size.

Applicability

Light-weight breaker can dismantle typical ceramic tiles.

Noise Impact

Light-weight breaker only aims to decompose the mortar bonding and the tiles and not the ground or wall structure when in use, and the resulting structural noise and vibration are smaller than those of handheld breakers.

Work Efficiency

Light-weight breaker will take slightly more time in removing the tiles compared to the heavy duty handheld breaker.

Price Range

The price of a light-weight breaker is about HK\$1,000-2,000, and the price of a conventional handheld breaker is about HK\$2,000-3,000. Light-weight breakers are cheaper than convention handheld breaker.

Market Supply

Contractors can easily purchase handheld breakers from local hardware stores. There are a lot of different brands of handheld breakers in stock on the market.

Contractors can easily purchase light-weight breakers from local hardware stores. There are a large number of light-weight breakers in stock of different brands in the market.

Hole making



Description

When carrying out building renovation works, it is often necessary to install anchor bolts in wall openings to secure water pipes or electrical wires. Contractors generally use electric drills for the drilling. This method generally produce a greater amount of structural-borne noise especially when drilling holes larger in diameter.

Conventional Renovation Equipment – Electric Drill

Tool Description

There are a variety of electric drills with different powers on the market, corresponding to different needs.

Technical Specification

00	Tool	Electric Drill
N V E N	Application	Wall coring
CONVENTIONAL	Weight	~1.2KG
A L	Size (L x W x H)	~200x250x200mm
Power		Electric-driven
Sound Power Level		~98dB(A)
	Accessories	Li Battery



Operation

Hold the front end of the electric drill close to the wall, turn on the tool and push it forward.

Quiet Renovation Equipment – Handheld Coring Machine

Tool Description

As a quieter alternative to electric drill, the handheld coring machine is more precise and efficient. Its unique design allows it to drill close to the edge for a fast, precise, and near-noise-free drilling process.

Through the high speed and eccentric rotation of the drill tip, the diamond ring mounted on the front of the handheld coring machine can pressurize to increase the drilling speed. Since the tip is partially sealed and relatively close to the wall, handheld coring machine can penetrate tough materials such as steel and concrete smoothly and quietly.

In addition, a handheld coring machine can also be connected to water supply equipment and dust collection equipment to reduce dust emission.

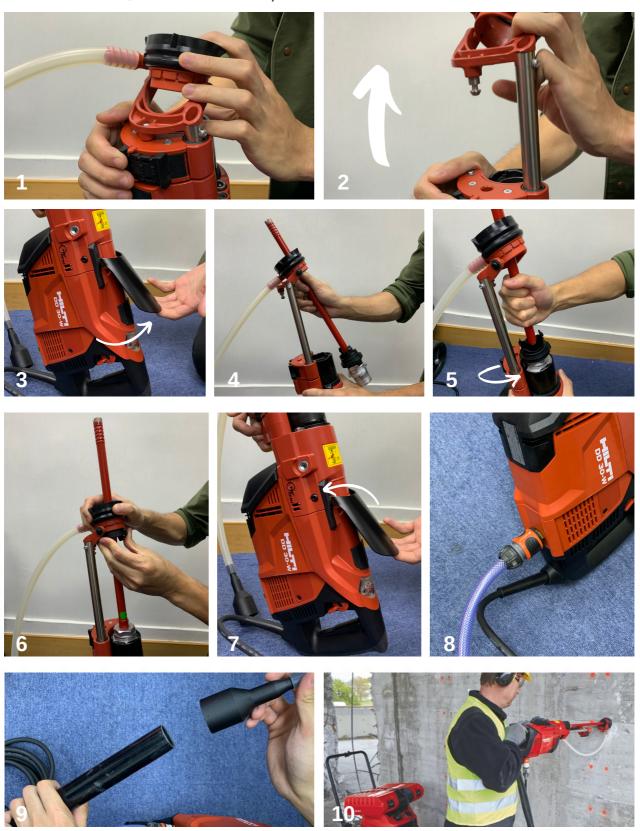
Technical Specification

UUQ	Tool	Handheld Coring Machine
QUIET RENOVATION	Application	Wall coring (8 - 35mm coring diameter)
OVATI	Weight	~7.5kg
OZ	Size (LxWxH)	~450x150x250mm
	Power	Electric-driven
S	ound power level	~98dB(A)
	Accessories	Water supply (e.g. water pipe), wet and dry vacuum cleaner



Operation

Connect the power and water source at connection port near the drill handle to the relevant equipment respectively, and connect the pipe at the front of the handheld coring machine to the vacuum cleaner. Hold the front end of the drill tip close to the wall, start the tool and push it forward.



Img 2.4 Using handheld coring machine Source: Hilti $^{\rm 4}$

Hole making

Pros and cons of using Handheld Coring Machine

Adaption

Being virtually impact free, handheld coring machine can perform tasks that ordinary electric drills cannot, reducing the risk of damage to brittle materials, such as drilling in fragile tiles and masonry. At the same time, the high-strength drill bit enables it to coring in high-strength concrete, masonry and natural stone.

On the other hand, the drilling capacity of electric drill depends on the drill tip and power, so it is suitable for most wall/building drilling. However, it is not suitable for brittle or fragile tiles and masonry due to the structural vibration caused by continuous drilling.

Applicability

Handheld coring machine is suitable for openings with a diameter of 8-35mm. The diameter of openings commonly used in renovation projects are generally not more than 20mm, so the relevant restrictions do not affect the use as coring.

The drilling capacity of electric drill depends on the diameter of the drill bit, so there is no limit to the opening diameter. However, due to the structural vibration caused by continuous drilling, it is more vulnerable to fragile or fragile tiles and masonry.

In addition, handheld coring machines can be used with water supply equipment (such as water hoses) and vacuum cleaners with water suction capabilities.

Noise Impact

Handheld coring machine is very quiet and can achieve low noise levels when fixing water pipes or electrical wiring during renovation works. The non-impact drilling method also greatly reduces structural noise.

Dust Emission

Since it can be connected to water supply equipment and dust collection equipment, handheld coring machine can achieve practically a dust-free discharge.

Work Efficiency

The power of handheld coring machine (~9200rpm) is larger than that of the conventional electric drills (~500-2,000rpm).

Price Range

The price of a handheld coring machine is about HK\$20,000, and the price of a electric drill is about HK\$1,000-2,000. Diamond coring machines are more expensive than conventional renovation.

Market Supply

Contractors can easily buy electric drills from local hardware stores. There are a large number of different brands of electric drills in stock on the market.

Contractors can mail-order handheld coring machines from other places by themselves or through agents, and there are several brands in stock on the market.

Anchor Fixing

Description

When fixing partition wall rails, cables, conduits or various light electrical installations, the installation of anchor bolts/fixtures is required. Contractors usually use electric drills with glue plugs, or use pneumatic nailers (nail guns) for fixing. Since the former involves an electric drill, it will produce continuous noise and its efficiency is relatively low, the use of pneumatic nail driver is more common.

However, although the noise effect of the pneumatic nail driver itself is relatively small and short-lived, but it needs to be connected to an air compressor to provide power to shoot metal nails. Additional accessories can bring inconvenience to the contractors.

Conventional Renovation Equipment — Pneumatic Driver

Tool Description

The pneumatic nailer uses the pressure difference between compressed air and atmospheric pressure to make the striker reciprocate in the cylinder through the trigger switch. When the striker comes out of the gun, the nail is driven out.

Technical Specification

CC	Tool	Pneumatic Driver
CONVENTIONAL	Application	Anchor fixing
ITION	Weight	~3.5KG
AL	Size (LxWxH)	~500x150x400mm
Power		Pneumatic
Sound Power Level		~101dB(A)
Accessories		Air compressor, nails



Operation

Connect the pneumatic driver to the air compressor. Fill the metal nail into the nailer magazine and pull the trigger while pressing the nail gun against the wall.

Quiet Renovation Equipment – Battery Actuated Direct Fastening Machine

Tool Description

Battery actuated direct fastening machine has the same function as the pneumatic nailer, but uses the battery as the power source, so it can avoid the noise effect caused by the air compressor.

Compared to pneumatic nailers, which use compressed air to push metal nails, Battery actuated direct fastening machines use a motor and spring assembly to push metal nails, which is completely driven by lithium-ion batteries.

Technical Specification

QUI	Tool	Battery Actuated Direct Fastening Machine
QUIET RENOVATION	Application	Anchor fixing
	Weight	~3.5KG
	Size(LxWxH)	~500x150x400mm
	Power	22V Li Battery
	Sound Power Level	~101dB(A)
	Accessories	22V Li battery, nails



Operation

Fill the metal nail into the battery actuated direct fastening machine magazine and pull the trigger against the wall.







Img 2.5 Using battery actuated direct fastening machine Source: Hilti $$\,^{5}$$

Anchor Fixing

Pros and cons of using related equipment

Adaption

Both pneumatic nailers and battery actuated direct fastening machines are suitable for installing anchor bolts/fixing nails.

Application

Since the pneumatic driver needs to use compressed air to operate, it is necessary to connect an air compressor before working.

Battery actuated direct fastening machines, on the other hand, do not require additional devices for power source.

Noise Impact

Battery actuated direct fastening machine has similar noise impact as the pneumatic driver. It is a low-noise, low-vibration, almost dust-free hand tool, and can avoid the noise caused by the air compressor.

Work Efficiency

Both battery actuated direct fastening machines and pneumatic nailers work equally efficient. Battery-driven, nail gun has less recoil, lower noise emission and fewer bad nails than the pneumatic nailer, which makes it more efficient. Plus, using a battery actuated direct fastening machine eliminates the hassle of ordering, shipping, and disposing of gas cans.

Price Range

The price of a battery actuated direct fastening machine is about HK\$8,000, and the price of a pneumatic nailer is about HK\$1,000. Cordless nail guns are more expensive than conventional renovation hand tools.

Market Supply

Contractors can easily purchase pneumatic nailers from local hardware stores. There are a large number of different brands of pneumatic nailers in stock on the market.

Contractors can purchase battery actuated direct fastening machines from local hardware stores, and there are a small number of battery actuated direct fastening machines in stock on the market.

Brick Cutting

Description

When removing part of an existing wall, contractors usually use a breaker to break up part of the wall. The use of handheld breakers tend to generate excessive airborne and structural-borne noise. Although chainsaw has a relatively lower structural-borne noise, its air-borne noise remains a noise nuisance to neighbours during renovation period.

Conventional Renovation Tool — Handheld Breaker

Tool Description

There are a variety of handheld breakers with different powers on the market, corresponding to different needs.

Technical Specification

CON	Tool	Handheld Breaker
CONVENTIONAL	Application	Remove bricks
	Weight	~10kg
	Size (L x W x H)	~600 x 200 x 200mm
	Power	Electric-driven
	Sound Power Level	~108dB(A)
	Accessories	Bull point chisel

Operation

Hold the breaker head against the wall/floor tiles and connect the other end to the electricity supply. Push the handle sleeve on the concrete wall/structure position to make the impact hammer strike against the tiles repeatedly.

Quiet Renovation Tool—Handheld Brick Cutter

Tool Description

Handheld brick cutter is considered as a quieter renovation equipment for brick cutting. An outer sleeve at the blade minimizes exposure of the blade during brick cutting, which minimizes noise emission.

In addition, handheld brick cutter can also be connected to a vacuum cleaner to reduce dust emission.

Technical Specification

QUI	Tool	Handheld brick cutter
QUIET RENOVATION	Application	Brick cutting (Maximum cutting depth: ~120mm)
	Weight	~3.5kg
	Size (LxWxH)	~700x250x250mm
Power		Electric-driven
Sound Power Level		~114dB(A)
	Accessories	Vacuum cleaner



Operation

Connect the dust connection port near the handle of handheld brick cutter to the vacuum cleaner, and replace the saw blade with a suitable depth. Hold the handheld brick cutter close to the wall, open the tool and push it forward.





Brick Cutting

Pros and cons of using handheld brick cutter

Adaptation

Handheld brick cutter has a blade depth of about 120 mm, while handheld breaker is suitable for various thicknesses of concrete.

Applicability

Since handheld breakers and handheld brick cutters run on electricity, they need to be connected to a power source before working. On the other hand, handheld brick cutter can be connected to a vacuum system for dust control.

Noise Impact

Through the protective cover at the saw blade, handheld brick cutter can minimize the exposed area of the saw blade and reduce the noise of cutting because it can be connected to vacuum system.

The use of handheld breakers tend to generate excessive airborne and structuralborne noise.

Dust Emission

Handheld brick cutting machine can achieve practically a dust-free-discharge.

Work Efficiency

Handheld brick cutters and breakers work equally well.

Price Range

The price of a handheld brick cutter is about HK\$5,000-10,000, and the price of a handheld breaker is about HK\$2,000-3,000. Handheld brick cutters are more expensive than conventional building renovation hand tools.

Market Supply

Contractors can easily buy handheld breakers from local hardware stores, and there are a lot of different brands of handheld breakers in stock on the market.

Contractors can easily buy handheld brick cutters from local hardware stores. There are a large number of handheld brick cutters of different brands in stock on the market.

Channeling/Grooving

Description

When installing plumbing and electrical wiring, workers need to remove part of the wall to make room for pipes. When grooving, renovation contractors/workers generally use a single-blade hand saw to cut out incisions in sequence then use a breaker to remove the concrete between the incisions. The use of percussive tool tends to generate excessive airborne and structural-borne noise, hence creating noise nuisance to neighbours/households.

Conventional Renovation Equipment — Single saw blade hand saw and breaker

Tool Description

Single-blade hand saw is a hand-held saw powered by electricity. Its working principle is to cut two incisions by the rotation of the circular saw blade, then use a breaker to remove the concrete between the incisions.

Technical Specification

	_	
00	Tool	Single saw blade hand saw
CONVENTIONAL	Application	Grooving (Maximum cutting depth: ~30mm)
ONAL	Weight	~5kg
	Size (LxWxH)	~350x150x200mm
	Power	Electric-driven
	Sound Power Level	~104dB(A)
	Accessories	N/A

Operation

Connect the saw handle to the nearby incisions dust connection port to the vacuum cleaner, adjust the depth and width of the circular saw blade, hold the portable saw close to the wall, open the tool and push it forward. After making two cuts, place the breaker close to the concrete between the cuts and connect the other end to the power supply. Push the handle sleeve on the concrete wall/building position to make the breaker head reciprocate continuously.

Quiet Renovation Tool—Wall Chaser

Tool Description

Wall chaser is considered as a quiet renovation equipment for the grooving. Compared with the conventional single-blade hand saw, wall chaser is equipped with multiple adjacent circular saw blades, which can remove concrete between incisions in one go to achieve the purpose of grooving.

Technical Specification

מר	Tool	Wall Chaser			
QUIET RENVATION	Application	Grooving(Maximum cutting depth: ~30mm)			
VATI	Weight	~5kg			
OZ	Size(LxWxH)	~350x150x200mm			
	Power	Electric-driven			
S	ound Power Level	~104dB(A)			
	Accessories	Wet and dry vacuum cleaner			





Operation

Connect the dust connection port near the wall chaser handle to the vacuum cleaner, and adjust the depth and width of the circular saw blade. Hold the wall chaser against the wall, start the tool and push it forward.

Channelling/Grooving

Pros and cons of using wall chaser

Adaptation

Both single-blade hand saws and wall chasers have a blade depth of about 30mm and are suitable for concrete thicknesses up to 30mm.

Application

Since single blade hand saws and wall chasers require electricity to operate, they need to be connected to a power source before working.

On the other hand, for dust control, hand saws and wall chasers can be connected to a vacuum cleaner.

Noise Impact

Wall chaser can cut the working time by more than half compared to single-blade hand saw, so it has a shorter continuous noise period. In addition, wall chaser also avoids the noise caused by the use of electric picks to remove the wall between the cuts.

Work Efficiency

Compared with the single-saw hand saw, wall chaser can reduce the process time by more than half, by saving time on the use of breakers, which provide higher work efficiency.

Price Range

The price of a wall chaser is about HK\$1,000-5,000, and the price of a hand saw with a single blade is about HK\$1,000-2,000. Wall chasers are more expensive than conventional building renovation hand tools.

Market Supply

Contractors can easily buy hand saws from local hardware stores, and there are a large number of hand saws of different brands in stock on the market.

Contractors can easily buy wall chasers from local hardware stores. There are a large number of wall chasers of different brands in stock on the market.

Summary

This guideline introduces several quiet renovation equipment for some common renovation activities; explains the use and advantages of the equipment. The following list summarizes each process and the corresponding quiet renovation equipment:

1 Concrete Crushing	Handheld Hydraulic Concrete crusher
2 Tile Removal	Light-weight Breaker
3 Coring	Handheld Coring Machine
4 Anchor Fixing	Battery Actuated Direct Fastening Machine
5 Brick Cutting	Handheld Brick Cutter
6 Channelling/Grooving	Wall Chaser

If renovation contractor/building management groups are interested in purchasing the above-mentioned quiet renovation equipment, some suppliers are listed in Appendix A for reference.

Appendix A

Quiet Renovation Equipment Directory and Respective Potential Suppliers

A.1 Handheld Hydraulic Concrete Crusher

Supplier	Model	With # Accessories	Rental/ Purchase	Contact No.	Email
Grand Power Engineering LTD.	230DE T10 150.02237	Yes	Purchase	(852)2365 5252	grandpower@hotmail.com
上海阜錦機械設備有限公司	ТЕНМА ССЗ00	Yes	Purchase	(86)13472788906	fujinjixie@163.com
Kingland (Sino) Co. Ltd.	*	Yes	Both	(852)2798 9202	info@kingland.com.hk
ANewR Consulting Limited	LJ TPCJQ Concrete crushing shear, Electric pump	Yes	Both	(852)2618 2831	web@anewr.com

Remarks

A.2 Light-weight Breaker

Supplier	Model	With # Accessories	Rental/ Purchase	Contact No.	Email
KRAFTOOL HONG KONG LTD	ZP-28-800 KM, SDS PLUS 3Y6P 20mm	No	Purchase	(852)3184 0265	/
Hilti (Hong Kong) Ltd.	Hilti TE 2-A22, Hilti TE 500-X	Yes	Both	(852)8228 8118	hksales@hilti.com
Max Million Enterprises Limited	Worx WU358, Flat chisel	No	Purchase	(852)2380 7695	rz_workshop@yahoo.com
ANewR Consulting Limited	Worx WU358 Devon 1107-26DE Makita HR2470X5 24mm (15/16") Hilti TE 500-X Flat chisel	Yes	Rental	(852)2618 2831	web@anewr.com

A.3 Handheld Coring Machine

Supplier	Model	With # Accessories	Rental/ Purchase	Contact No.	Email
Hilti (Hong Kong) Ltd.	Hilti DD 30-W	Yes	Both	(852)8228 8118	hksales@hilti.com
ANewR Consulting Limited	Hilti DD 30-W	Yes	Rental	(852)2618 2831	web@anewr.com
Milwaukee Tool Hong Kong	Milwaukee MXF DCD150	Yes	Purchase	(852)8101 0100	enquiry@milwaukeetool.com.hk
EMS Pioneer International Limited	Husqvarna DM 540i	Yes	Purchase	(852)9758 8484	rebeccatsang@emspioneer.com

A.4 Battery Actuated Direct Fastening Machine

Supplier	Model	With # Accessories	Rental/ Purchase	Contact No.	Email
Welfare Electronic Component Ltd.	DeWALT DCN890P2	Yes	Purchase	(852)3182 0820	cs@wecl.com.hk
U-Tools Home Hardware	DeWALT DCN890P2	Yes	Purchase	(852)2479 9830	/
Hilti (Hong Kong) Ltd.	Hilti BX 3-L (02)	Yes	Both	(852)8228 8118	hksales@hilti.com
ANewR Consulting Limited	DeWALT DCN890P2	Yes	Rental	(852)2618 2831	web@anewr.com
Triple Metal and Machinery Limited	Ramset TrakFast™800 Plus	Yes	Purchase	(852)2397 0128	sales@triple.com.hk
MCM Construction Materials Supply Co.,Ltd.	Ramset TrakFast™800 Plus	Yes	Purchase	(852)2443 1222	sales@mcmhk.com

^(*) Suppliers provide different models corresponding to different scopes of application. For detailed tool models, please check with the supplier. # For type of accessories, please refer to technical specification of each equipment

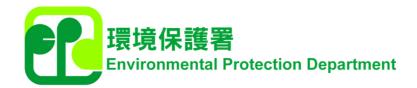
Quiet Renovation Equipment Directory and Respective Potential Suppliers

A.5 Handheld Brick Cutter

Supplier	Model	With # Accessories	Rental/ Purchase	Contact No.	Email
Makita Power Tools (HK) Limited	Makita 4114S	Yes	Purchase	(852)2648 8683	/
KRAFTOOL HONG KONG LTD	ZSH-P45-2100	Yes	Purchase	(852)3184 0265	/
KRAFTOOL HONG KONG LTD	ZSH-P30-1400	Yes	Purchase	(852)3184 0265	/
ANewR Consulting Limited	Arbortech ALLSAW AS175, Makita 4114S	Yes	Rental	(852)2618 2831	web@anewr.com

A.6 Wall Chaser

Supplier	Model	With # Accessories	Rental/ Purchase	Contact No.	Email
Hansi Anhai Far East Limited	Einhell TC-MA 1300	No	Purchase	(852)2501 5556	/
Hilti (Hong Kong) Ltd.	Hilti DCH 300	Yes	Both	(852)8228 8118	hksales@hilti.com
Raymonds Supply Co. Ltd	Draper 125mm 54956	No	Purchase	(852)2190 1226	sman@raymonds.com.hk
Makita Power Tools (HK) Limited	Makita SG1251J	Yes	Purchase	(852)2648 8683	/
ANewR Consulting Limited	YKDAQI DQ-1009, Einhell TC-MA 1300	Yes	Rental	(852)2618 2831	web@anewr.com



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