

2019

General Construction Guidelines

Construction work of Norwegian Embassies
and Consulates abroad



Property Management and General Services
Royal Norwegian Ministry of Foreign Affairs

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No.	Name:



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Index:

1	Introduction	5
2	Language	5
3	Measured drawings	5
4	Insurance	5
5	Statutory Consents & Local Authority Approvals	5
6	Technical Specifications	6
7	Setup	6
8	Walls	6
8.1	Sound insulation / fire insulation	6
8.2	Perimeter walls - Fire resistant and soundproof walls	7
8.2.1	Perimeter Walls - Fire resistant and soundproof wall construction	7
8.3	Bullet Proof Walls and reception counters	8
8.3.1	Bullet proof wall construction	9
8.4	Standard partition walls	10
8.4.1	Standard partition wall construction:	10
8.5	Strengthened Interior partition walls (Strong Room)	11
8.5.1	Strengthened Interior partition walls construction:	12
8.6	Strengthened Interior partition walls – Light version (Server Room)	12
8.6.1	Strengthened Interior partition walls - Light version. Construction. Option with drywall: 12	
9	Doors	13
9.1	Sluice / Man trap	13
9.1.1	Sluice / Man trap construction:	14
9.1.2	Control panel	14
9.1.3	Key safe in sluice	15
9.2	Emergency Exit Door	16
9.3	Security door – steel	17
9.4	Security door – glass	18
9.5	Locks and Hinge bolts	19
9.6	Access control system	21
9.6.1	Main access control system	21
9.6.2	Extra access control unit for secure zone door (Bewator)	21
10	Ceiling	22
11	Floors	24
12	Ventilation	24
13	Plumbing and mechanical installations	25
14	Kitchen/kitchenette/pantry	25
15	Modification to Existing Building Services	26
16	Miscellaneous	26
17	Electrical installations	26
17.1	Lighting	26
17.2	Power Supply	27
17.2.1	UPS	27
18	Fire detection and suppression system	28



NORWEGIAN MINISTRY
OF FOREIGN AFFAIRS

18.1	Fire detection system	28
18.2	Fire suppression sytem	28
19	Intrusion alarm	28
20	CCTV/ Camera Surveillance	28
21	Cable ducts / Cable raceways	29
21.1	Wall:	29
21.2	Ceiling	29
21.3	Raised floor:	29
21.4	Vertical shafts	31
22	Server room	31
23	Strong Room / Archive 2	32
24	Visa Archive	33
25	WIFI	33
26	Audio Video Equipment	33
27	Satellite Dish	34
28	Blast Foil	34
29	Bullet resistant Security Counter - Reception / Interview Room	34
29.1	Receptionist Counter	35
29.2	Biometric room / Interview Room	38

1 Introduction

Section for Property Management and General Services hereinafter “PMGS” is the legal tenant for all Norwegian diplomatic missions abroad. This document will provide general information on requirements for a new office fit out for a Norwegian Embassy or Consulate General. This will be a straightforward fit out project using a proprietary partitioning system.

The project includes all work related to mechanical and electrical systems; HVAC, general basic lighting, PVC conduits for IT/phone, automatic fire detection and alarm systems, electronic access control, sprinklers, fire hose reels, portable fire extinguishers etc. where this is not carried out by the Landlord.

The selection, tender and installation of electronic access control, IT and phone systems will be carried out by the Norwegian Ministry of Foreign Affairs. All cables and equipment will be transported from Norway to the designated area. Only cable conduits, ducts, pipes etc. will be installed by the contractor.

The Entrepreneur will be required to hold all the necessary insurances adequate for this project, and that these insurances are maintained for the duration of the contract.

This document will provide the general standard on construction, security, functionality and finish

2 Language

All documents, drawings and communication in the project must be in English.

3 Measured drawings

The Contractor will be requested to prepare detail drawings for the premises, which will be subject to approval by the Client. During construction, the Client must immediately be notified about any possible changes of the room sizes or other features in the premises compared to those shown on the approved drawing to allow for necessary adjustments of types, sizes and position of the furniture and equipment which will be used in the premises.

4 Insurance

It will be the Landlord's and the executive Contractor's obligation to keep the premises, the work force working there and any third parties, covered by comprehensive insurance during the completion of the renovation and fit out works.

Under no circumstances shall the Norwegian Consulate General or the Norwegian Ministry of Foreign Affairs be held responsible for any damages to persons or property in connection with the said works carried out in the premises.

5 Statutory Consents & Local Authority Approvals

It will be the responsibility of the Project Manager/ Entrepreneur to obtain all the local statutory consents.

6 Technical Specifications

The technical specifications for the various wall constructions are based on the requirements of Norwegian codes and building regulations.

All construction and fit out works must also adhere to the local codes and building regulations. The Norwegian level shall be implemented/applied in case local regulations are more lenient.

7 Setup

Norwegian missions have different needs depending on type of missions abroad. However normally each office layout needs the following functions.

- Secure reception area with bulletproof walls and security counter
- Bullet proof sluice (Man trap) in main reception area
- Bullet proof visa reception and interview rooms
- Meeting rooms
- Strong room
- Server room
- Visa Archive
- Technical room for electric panels etc.
- Regular Archive room
- Kitchen/ Kitchenette
- Lunch area/ Canteen
- Lounge area
- Rest rooms / Toilets
 - Inside office area
 - Visitor area/ Visa area

8 Walls

Six types of walls are required:

Perimeter walls - *Fire resistant and soundproof walls.*

Bullet proof walls.

Standard partition walls.

Full height partition walls - (Secure zone)

Strengthened Interior partition walls - (Strong Room)

Strengthened Interior partition walls – Light version (Server Room)

8.1 Sound insulation / fire insulation

For new wall structures, the following functional requirements should be observed:

New internal partition walls must provide 30 minutes fire resistance and should have the following minimum sound reduction capacity (door openings and glass partitions included).

Between offices and corridors/common areas: 35 decibel (dB)

Between offices and offices: 35 dB.

Between meeting rooms and corridors/common areas: 42 dB.

Between meeting rooms and offices/other rooms for permanent occupancy: 35 dB.

Perimeter walls. Walls between other tenants / Lobby area etc. must provide 60 minutes fire resistance and minimum 50 dB sound reduction.

To obtain the described performance it will usually be necessary that the walls span from the structural floor slab and up to the structural ceiling slab. i.e. the existing ceiling needs to be removed.

The surface of the dry wall structures shall be treated by stopper and sandpaper to a smooth and even surface. If available, film of the finest grades (plastered wall surface look) shall be applied and shall be given one primer and two coats of washable PVA paint. If film is not available, the walls should be given one primer and three coats of washable PVA paint. The Client will specify the colours.

8.2 Perimeter walls - Fire resistant and soundproof walls.

These walls are being used in partition walls separating the mission premises from neighbouring tenants. They may be constructed as dry wall construction, concrete or with bricks and mortar. The wall and doors to the Multi Tenancy Corridor must be 60 minute fire rated. Glass fibre film of the finest texture to be fixed to the visual parts of the gypsum board cladding and to be completed by one primer and two coats of washable PVA paint to a selected colour.

The walls are to span from the structural floor slab up to underside the structural ceiling slab.

Cable ducts and pipes must be secured against intrusion, sound and fire.

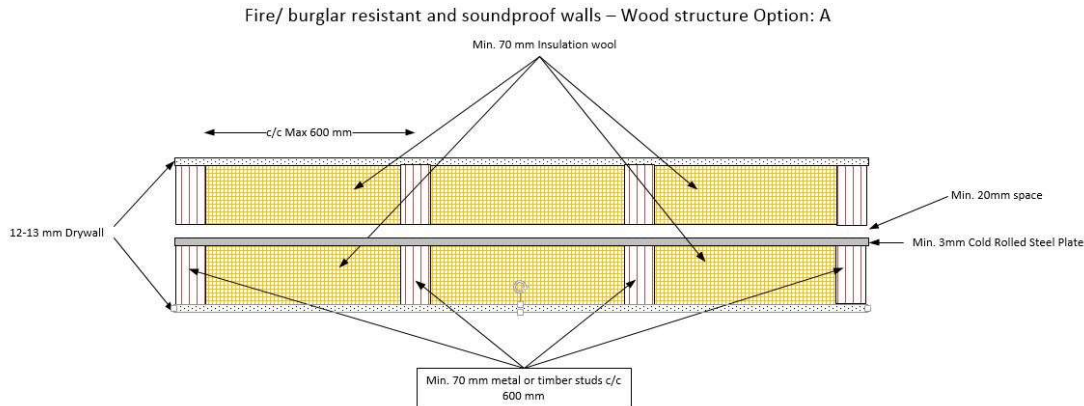
Fire resistance capacity: 60 minutes.

Sound reduction capacity: 50 decibel.

8.2.1 Perimeter Walls - Fire resistant and soundproof wall construction

Walls based on wooden or metal framing. Option: A

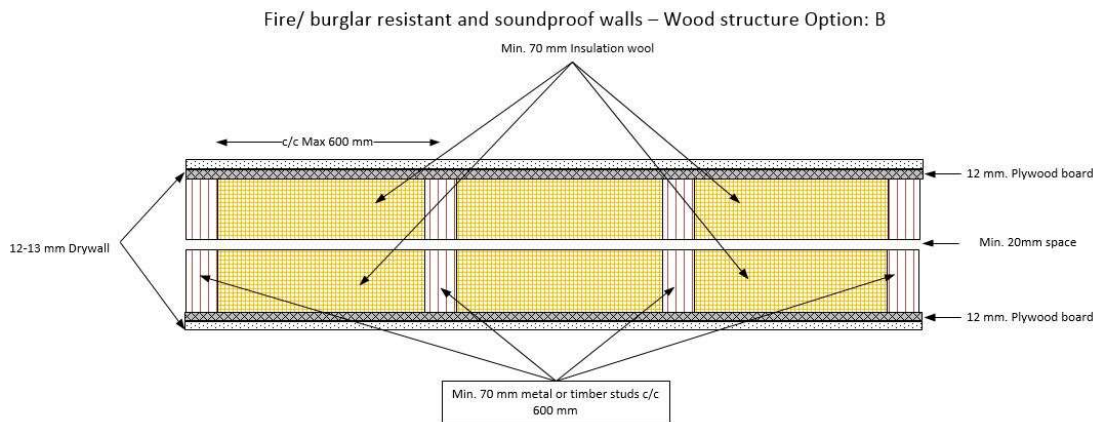
- Double set of 70 mm metal or timber studs c/c 600 mm with 20 mm distance in centre between the two framings.
- 70 mm mineral wool insulation between studs.
- 3 mm steel plate to be fixed in the centre between the two framings. (One 3 mm steel plates in the middle of the two framings replace the need of plywood boards.)
- On the either sides of the frames, 12 mm thick plywood boards must be fixed from the structural floor to the structural ceiling (slab to slab).



Picture above: Fire_burglar resistant and soundproof walls – Wood structure Option_A

Walls based on wooden or metal framing. Option: B

- Double set of 70 mm metal or timber studs c/c 600 mm with 20 mm distance in centre between the two framings.
- 70 mm mineral wool insulation between studs.
- On top of the studs/framing 12 mm plywood boards shall be fixed (plywood boards replace the need for 3mm steel plate)
- On top of the plywood board's min. 12 mm gypsum boards shall be fixed, treated by stopper and sandpaper before painting.



Picture above: Fire_burglar resistant and soundproof walls – Wood structure Option_B

Concrete/ Brick wall:

Reinforced concrete, cement blocks or bricks may be used if this is more convenient. 12 mm gypsum boards shall be fixed on top of concrete or brick wall, treated by stopper and sandpaper before painting.

8.3 Bullet Proof Walls and reception counters

The purpose of the walls is to separate the public waiting areas, including the Visa Waiting Areas and the Safety Interlocking/Air Lock from the staff reception areas.

These walls are required to be resistant against standard hand weapons (minimum BR4/FB4), which require a 6 mm cold rolled steel plate fixed to the side of the studs in the centre.

The walls will be equipped with bulletproof serving and inspection windows and with bulletproof doors. These components weigh up to 150 kilograms and must be fixed to solid timber or metal jambs on either side of the openings with equivalent lintels above, mounted inside the walls. These walls span from the concrete floor slab to the structural floor slab above.

A number of bullet proof serving window to be fitted in the Main Reception and in biometric interview room. Size may vary and will be specified in each instance

A bulletproof observation window to be fitted in the wall between the Main Reception and the Security sluice/ mantrap, size may vary.

A number of bullet proof serving windows to be fitted between the Visa Section and the Visa Waiting Area. In most cases, the Embassy will have a joint Main reception and Visa Reception with a common Waiting Area.

One bullet proof serving window to be fitted in the wall in each Visa Interview Rooms.

All cables or piping and A/C ducts routed through the wall must be secured with a minimal opening to avoid access from outside.

8.3.1 Bullet proof wall construction

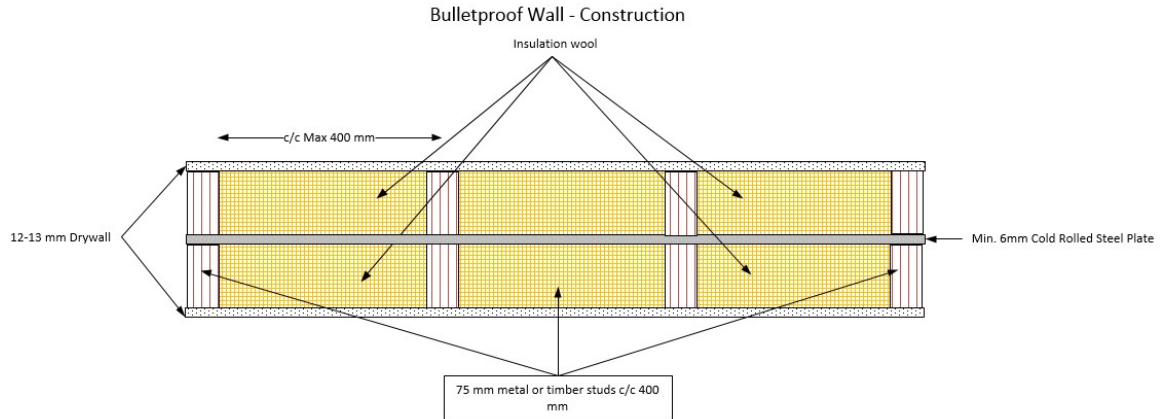
2 x 70 mm metal or timber studs c/c 400 mm to span from the structural floor slab up to the structural ceiling slab.

A minimum 6 mm thick cold rolled steel plate to be fixed to one side of the studs from the floor to the structural ceiling.

Option 1: Metal / timber studs:

Metal or timber studs c/c 400 mm fixed to the other side of the metal plate. The metal plate to be in the centre between the two stud frames. (see picture: Bulletproof Wall – Construction)

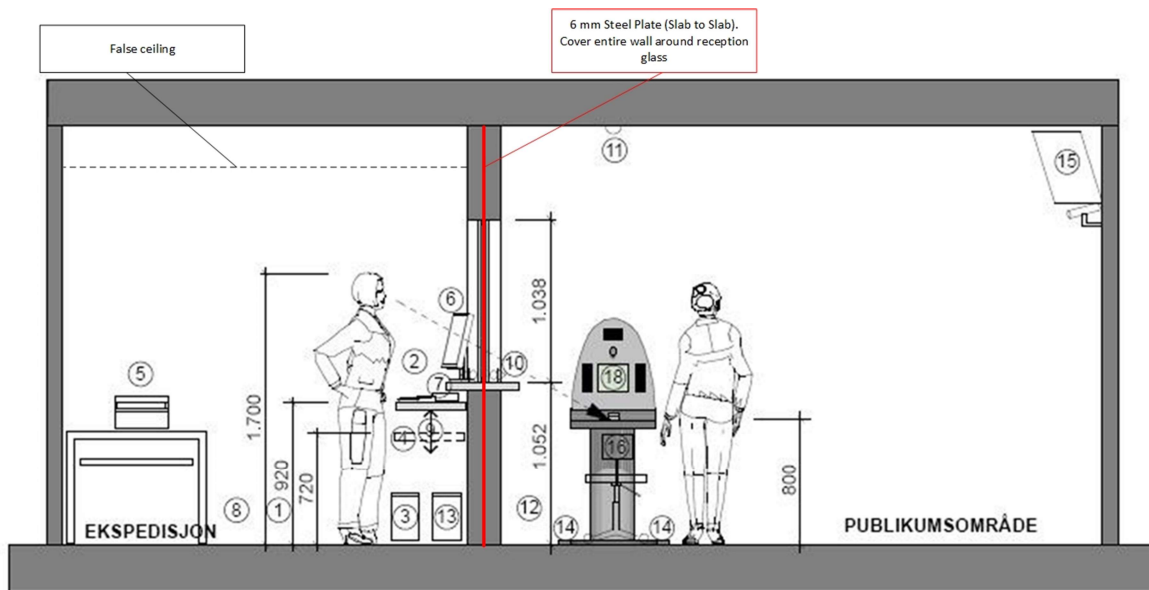
- 70 mm mineral wool insulation to be fixed inside both of the 70 mm studs frames.
- 12 mm gypsum boards cladding to be fixed to either side of the wall.
- 6 mm Steel plate to be fixed between the two wall framings.
- Gypsum board cladding to be treated by stopper and sandpaper to a smooth and even surface.
- Glass fibre film of the finest texture to be fixed to the visual parts of the gypsum board cladding and to be completed by one primer and two coats of washable PVA paint.



Picture above: *Bulletproof Wall – Construction_1*

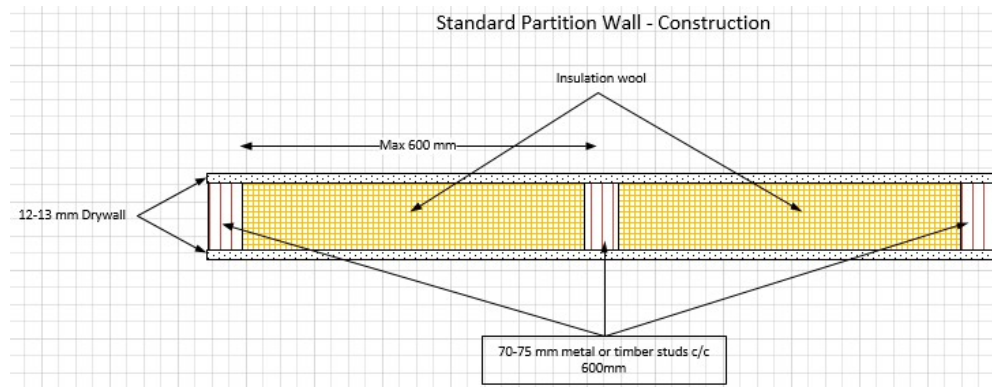
Option 2: Concrete/ composite:

Composite materials or 100mm reinforced concrete can be used instead of wood and steel as long as these materials meet the minimum requirements of FB4/BR4.



- 70 mm mineral wool insulation fixed between the studs inside the frame.
- 12 mm gypsum board cladding on either side of frame from floor to structural ceiling.
- The gypsum board cladding to be treated by stopper and sandpapered to a smooth and even surface.
- Glass fibre film of the finest texture to be fixed to the visual parts of the gypsum board cladding and to be completed by one coat of primer and two coats of washable PVA paint.

(See Picture: Standard Partition Wall –construction)



Picture above: Standard Partition Wall -construction

Glazed partition walls

These walls may be custom made or from a proprietary partitioning manufacturer. The non-visual parts of the walls above the suspended ceiling may be constructed as standard gypsum clad partition wall unless particularly specified a reduced fire resistance capacity may be accepted for these walls.

- Sound reduction capacity: minimum 35decibel
- Glazed partition walls construction:

The walls may be constructed from prefabricated timber or pvc-covered pressed mineral fibre frames or from extruded metal frames, all in accordance with the specification from the client.

Glass thickness to be minimum 6 mm and should be certified safety glass.
 Treatment and finish of frames to be according to the detail specifications.

8.5 Strengthened Interior partition walls (Strong Room)

The walls around Strong Room shall be constructed as dry wall structures with frames made from wooden studs (slab to slab) and braces.

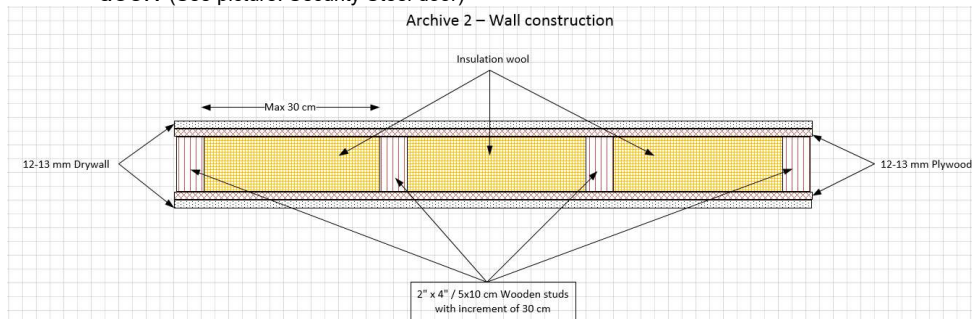
- Minimum size of room 3m x 2m.
- No hidden cabling is accepted in this room.
- All light fixtures, power outlets and data outlets must be surface mounted.
- No AC ducts, power lines or fire suppression systems are to be routed through this room to adjacent rooms. However these systems can be installed as long as the cable, pipe and ducts ends up inside this room.
- 3 x two way dedicated 220v 16 Amp dedicated circuit.
- No fire detector or smoke detector. Unless required by local building codes.

- No false ceilings.

Note: One safe will be placed in Strong Room (**w mm x d mm**), **350 kilogram**. The Project Manager will be required to consult with the structural engineer for the Office Building to ensure that the location of the safes are in order and that the floor is designed to take this extra loading. If the floor is not suitable, the safes can be placed on a structural steel plate which will distribute the weight over an extended area.

8.5.1 Strengthened Interior partition walls construction:

- The frames must be made from wooden studs and braces. Mounted Slab to Slab. No metal frame will be accepted in the walls around this room.
- On the inside of the frames, 12 mm thick plywood boards must be fixed from the structural floor to the structural ceiling (slab to slab).
- On top of the plywood boards and on the other side of the frame 12-13 mm gypsum boards shall be fixed, treated by stopper and sandpaper before painting. (See: Picture: Strong room – Wall construction)
- Also in the ceiling in this room, no metal frames to be used, as specified under item “Ceilings”.
- The door to Archive is to be steel construction with a steel frame. The size of the door will be approximately 1000 w x 2100 mm h. (See: Picture: Strengthened Interior partition walls- Strong Room)
- The wooden construction for the door must be rigidly constructed with solid anchoring in floor and slab ceiling with double studs on both sides and on top of door. (See picture: Security Steel door)



Picture above: Strengthened Interior partition walls- Strong Room

8.6 Strengthened Interior partition walls – Light version (Server Room)

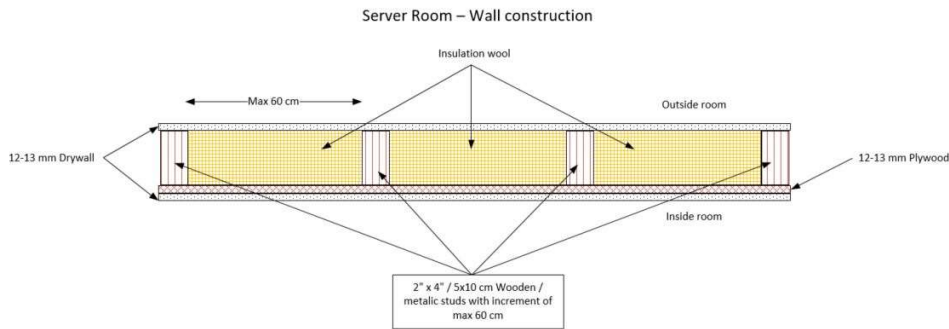
The walls around the Server Room can be constructed as dry wall structures with regular wood/ Steel framing, concrete or brick.

- Minimum size of room 3m x 2m.
- Slab to slab construction

8.6.1 Strengthened Interior partition walls - Light version. Construction. Option with drywall:

- The frames/ Walls to be made from wooden or metallic studs and braces. Mounted Slab to Slab.
- On the inside of the frames, 12 mm thick plywood boards must be fixed from the structural floor to the structural ceiling (slab to slab).

- On top of the plywood boards and on the opposite side of the frame 12-13 mm gypsum boards shall be fixed, treated by stopper and sandpaper before painting. (See: Picture: Server Room – Wall construction)
- The door to the Server room can be a local produced door. The size of the door will be approximately 1000 w x 2100 mm h. Minimum 40 mm thickness.



Picture above: Strengthened Interior partition walls - Light: Server Room

9 Doors

There are normally 5 types of doors in our projects:

- Office door
- Sluice Doors / Man trap
- Emergency Exit Door
- Security door - steel
- Security door – glass

All wooden doors in the premises must be of the compact type. All doors must have a minimum thickness of 40 mm to accommodate the required security locks. The type of locks, which shall be used, will be specified by the Ministry of Foreign Affairs and shall either be Trio-Ving or Continental type with round or oval cylinders. If not otherwise agreed upon the locks shall be supplied and installed by the Contractor. The cylinders however, will be supplied and installed by the client. The finish, colour and choice of materials of the doors shall be approved by the Client.

The doors must be installed 100% leveled to avoid problems closing and opening the door. Furthermore it is important to make sure the door is not coming in conflict with the floor.

- All locks must be tested to make sure the door is correctly installed.
- Door locks in locally provided office doors must meet the requirements for the use of Continental or TrioVing / Assa Lock (Få modell nr. av Olaf Dag)
- (See Picture: Cylinder Option 1 and 2)

9.1 Sluice / Man trap

Client normally delivers sluice doors, however local produced doors can be used if satisfactory security certificates can be provided.

(See Picture: Sluice door)

A Safety Sluice / Mantrap consists of two doors with the following functionality:

Steel frame with bullet resistance level of: FB4 Glass panels in doors must meet the requirements of class BR4.

- The door should be easy to operate and have a good handle.
- The door should have a satisfactory appearance / aesthetics
- The doors will be delivered both as left and right hinged
- The steel in the frame and frame to be supplied powder coated in standard RAL colours. (Colour to be decided by the client).

Doors should be fitted with the following:

Day lock:

- Electric striking plate (ASSA Solid 575 - Series or similar)
- Lock case (Assa 6585)

Night lock:

- Fixed striker
- Lock Case: Assa 9787
- Night lock must be placed 50 cm below Day lock.

Miscellanies:

- Door closer
- Back fittings / back edge device (See Picture: Hinge bolt Example 1 and 2), screws and mounting plates
- Handle: (Example: Abloy Inoxi 138-25/400 or similar)
- Control panel with man trap function for doors with built-in power supply to electric striker in Day-lock. The control panel shall protect the lock function (interlock)
- Alarm outputs for doors
- Mantrap function must not allow both doors to be opened at the same time.
- Cables for connecting mantrap function to remote operation button in reception area.

9.1.1 Sluice / Man trap construction:

The Sluice doors must be mounted in a solid steel frame with solid anchoring in floor and slab ceiling.

Doors supplied by the client will be approximately W:1170 x H:2100 mm. Weight: 225 kg.

The door must be installed 100% levelled to avoid problems closing and opening the door. All locks including control panel must be tested to make sure the door is correctly installed.

9.1.2 Control panel

Control panel with mantrap function must be installed in reception area. In close proximity to receptionist work desk.

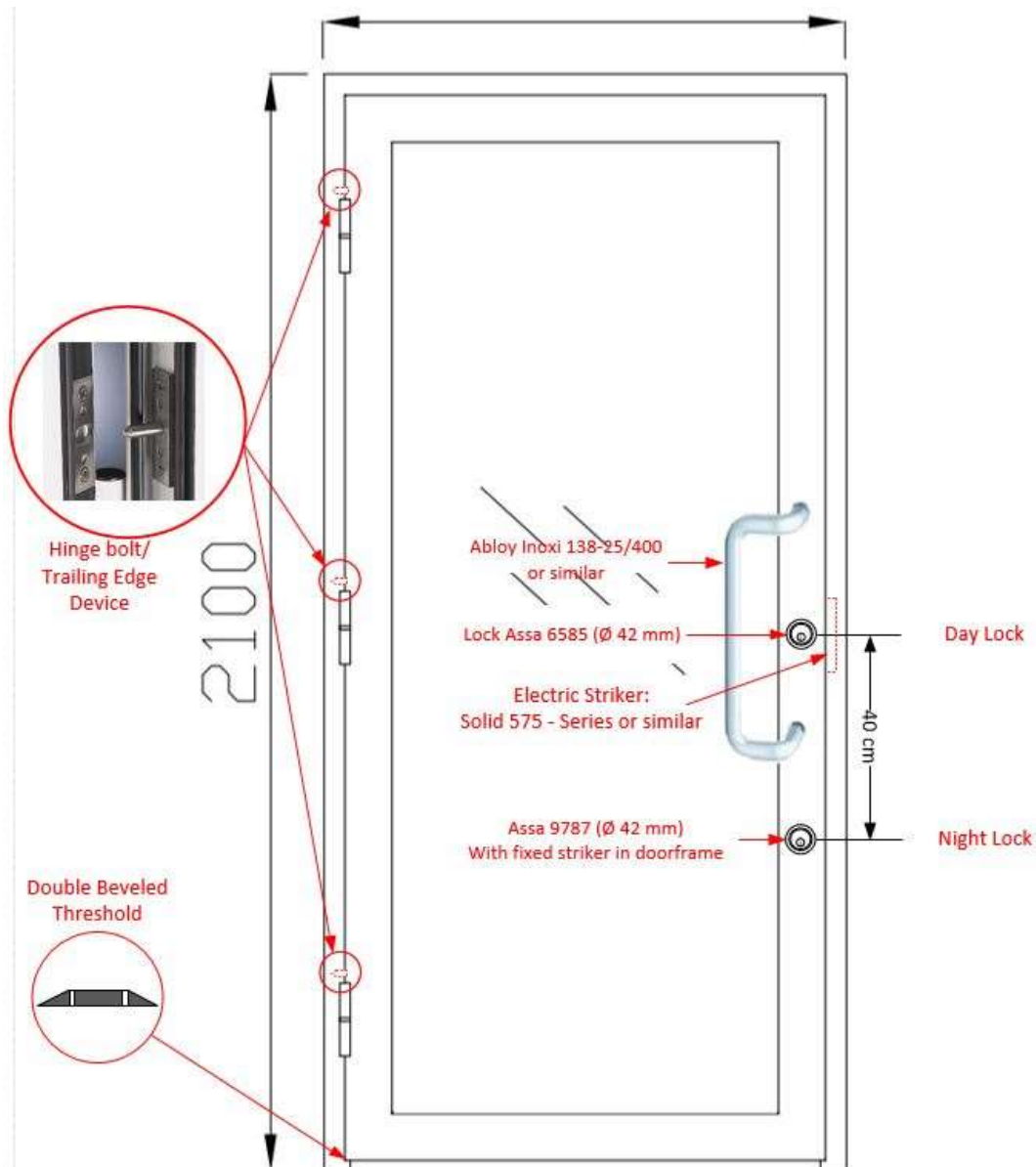


9.1.3 Key safe in sluice

The sluice will be equipped with a key safe measuring: H: 222 x W:155 x D: 77 mm. This safe will be supplied by client. Key safe must be installed and secured in the wall inside the sluice by local contractor.



Picture above: Key safe

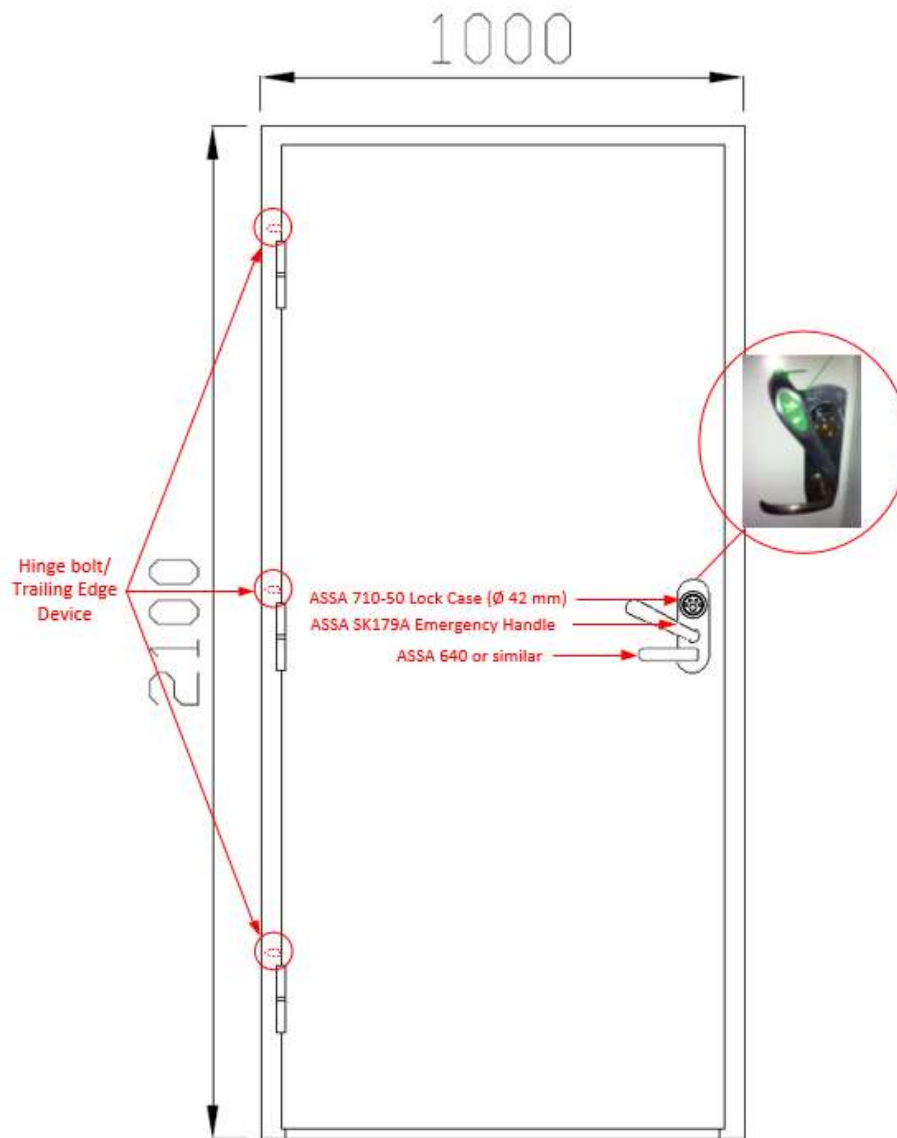


Picture: Sluice door

9.2 Emergency Exit Door

The office must be equipped with minimum one Emergency Exit. The Emergency exit door can be provided by the client (see picture: Emergency Exit Door). This Exit door must meet the following requirements:

- Steel door with a minimum fire resistance capacity: 60 minutes (IE60).
- Sound reduction capacity: 50 decibel.
- Keyless. Single motion emergency opening (See Picture: Emergency Exit Handle (ASSA SK179A))
- Key option for service usage
- **Intrusion protection Minutes...?**
- Measurements: W 1000 mm x H: 2100 mm



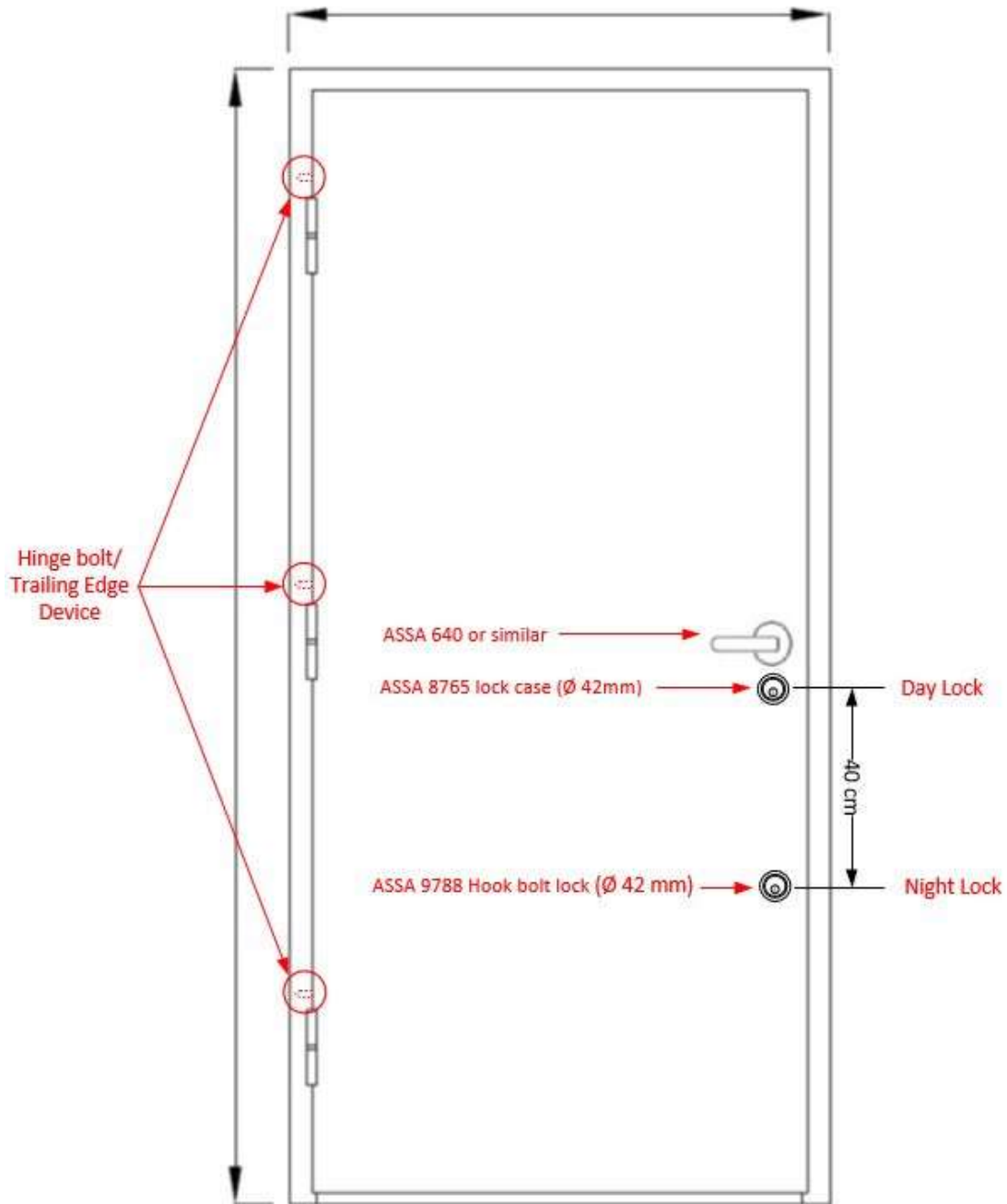
Picture: Emergency Exit Door

9.3 Security door – steel

Security door – Steel is usually provided by client.

Door is equipped with the following:

- Day Lock – Assa 8765 Lock case
- Night Lock – Assa 9788 Hook bolt Lock
- Hinge bolt / Trailing Edge device (See Picture: Hinge bolt Example 1 and 2)



Picture above: Security Steel Door

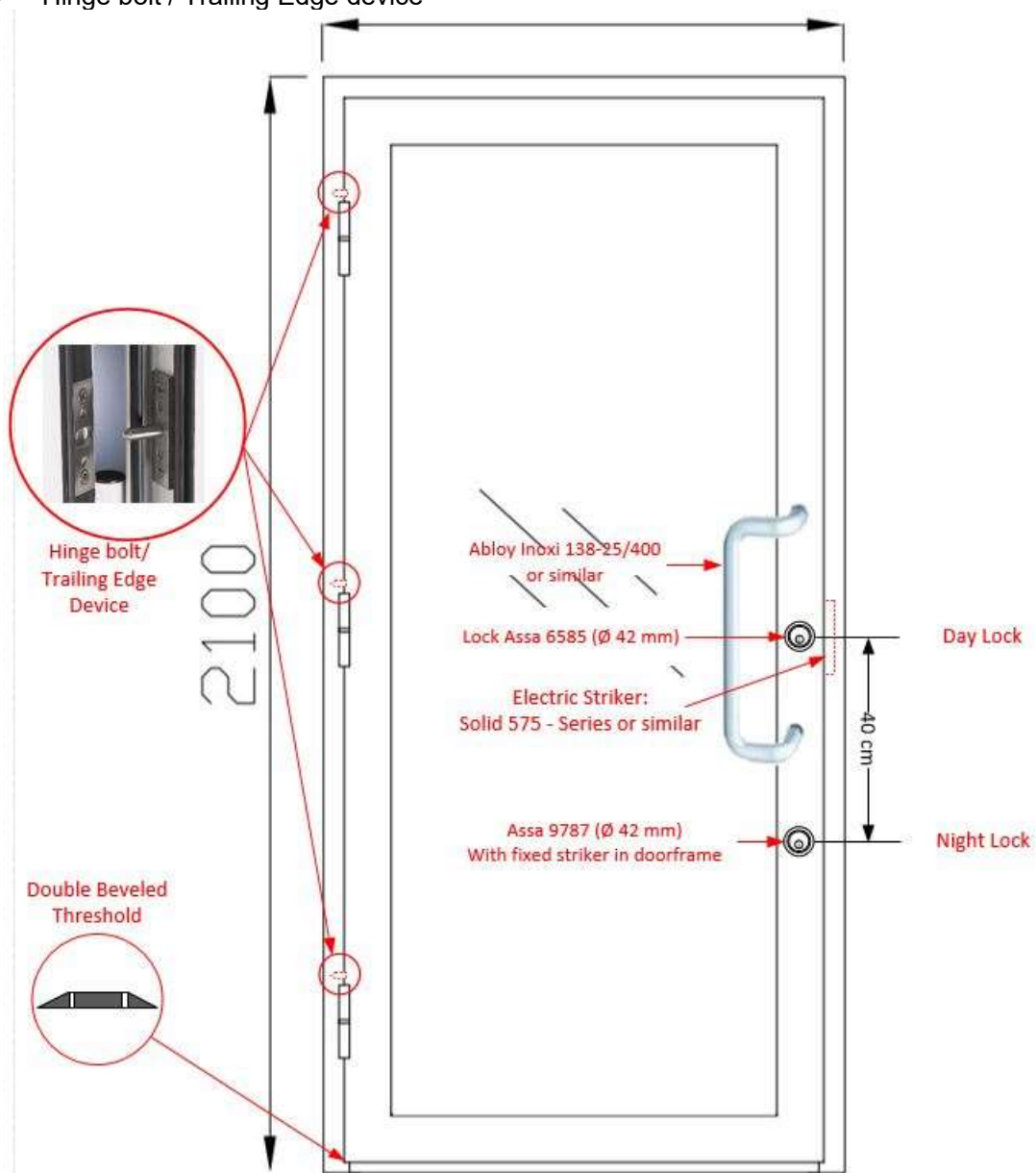
9.4 Security door – glass

Foreign missions are in some cases divided in several security zones. In these cases doors with aluminium framing and strengthened glass is often used. (See picture: Security Door – Glass)

Door is equipped with the following:



- Glass Security Standard: P6B (EN356)
- Day Lock – Assa 8765 Lock case
- Night Lock – Assa 9787 Hook bolt Lock
- Hinge bolt / Trailing Edge device

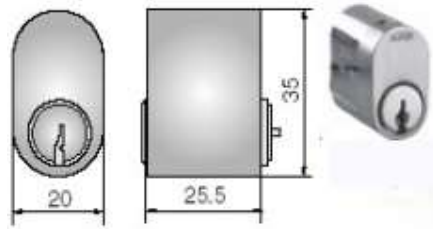


Picture above: Security Door - Glass

9.5 Locks and Hinge bolts



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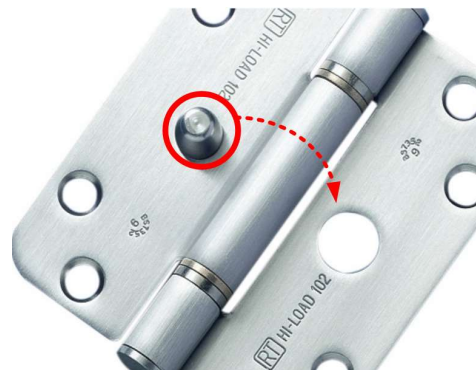
Picture: Cylinder Option 1



Picture: Cylinder Option 2



Picture: Hinge bolt Example 1



Picture: Hinge bolt Example 2



Picture: Emergency Exit Handle (ASSA SK179A)

9.6 Access control system

9.6.1 Main access control system

A number of doors will be equipped with a access control system. This system will be provided and installed by the Norwegian MFA. However all conduits, pipes etc. must be planned and installed by the contractor. (See picture: *Door with access control system*)

Every door with an access control system require:

- One 16 mm pipe from keypad/ card reader to electric striker area.
- One 16 mm pipe from keypad/ card reader area to main data conduit.
- One 16 mm pipe from keypad/ card reader to button on inside of door.

All pipes must be equipped with pull cords.

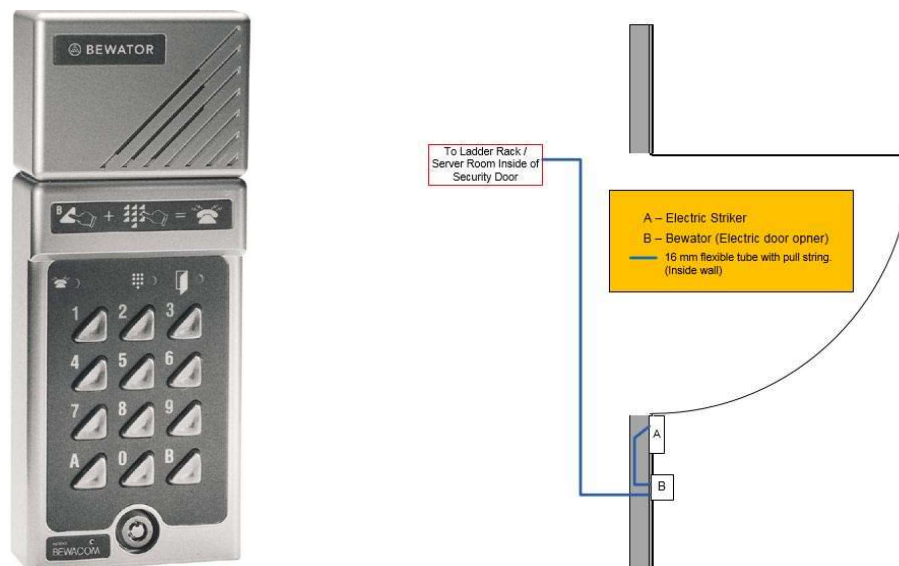
The two sluice doors will be supplied with a remote operation system and the locks already installed. The Contractor will only be requested to supply and install the electrical power source (230v outlet) in addition to installing an testing the door remote operation system.

A 16 mm concealed pipe from each door to receptionist work area must be installed by contractor for this purpose.

9.6.2 Extra access control unit for secure zone door (Bewator)

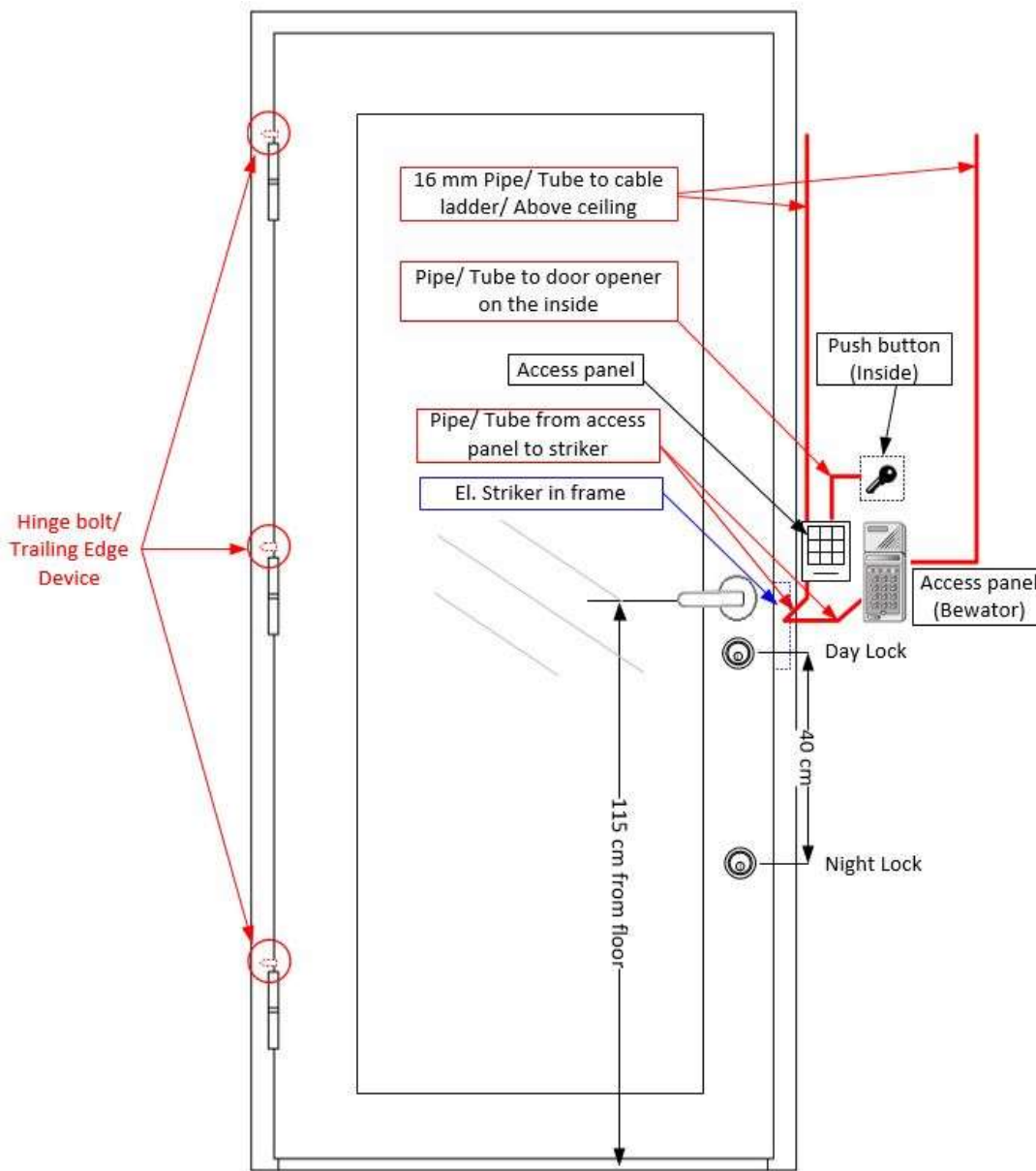
The security door for the secure / controlled zone is in many cases to be equipped with an extra access control Unit for the purpose of remote opening. This unit (Bewator) needs cable conduit 16mm from main data conduit and to electric striker in door frame: (See picture: *Bewator Unit and cable infrastructure*)

NOTE: Cables must not be visible or available from outside of secure area.



Dimensions: W:80 x H:200 x D:40 mm

Picture above: *Bewator Unit and cable infrastructure*



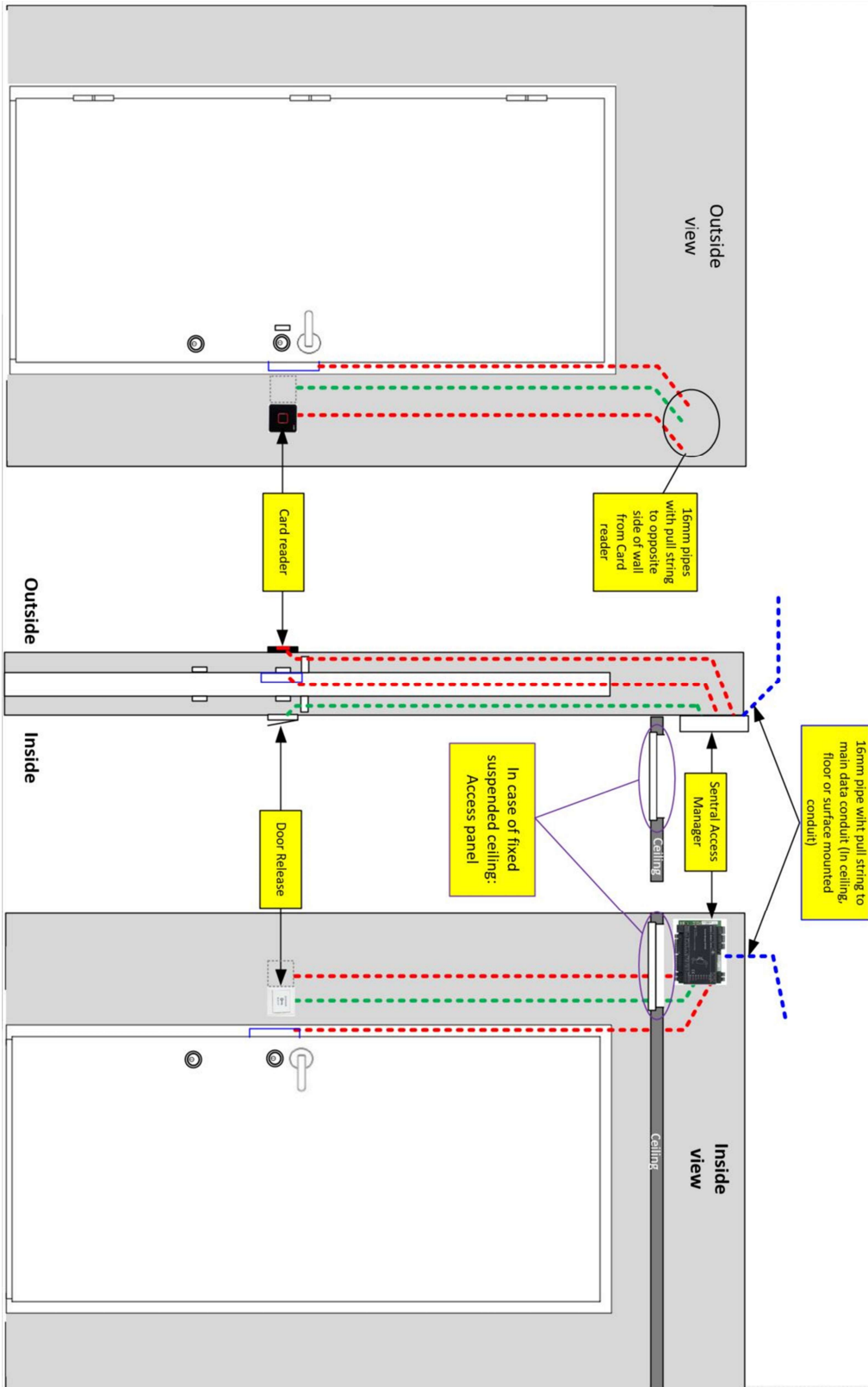
Picture: Security door with access control system

10 Ceiling

Fixed suspended ceilings must be provided with inspection hatches at strategic locations to allow access to concealed electrical and telecommunication wiring and ventilation system inside the ceiling void.

If the ventilation system requires that the ceiling must be lowered in certain other areas, the Client shall approve these areas.

Please note that the ceiling above the "Strong Room" must only have purlins made from wood. No metal frames will be accepted in this room.



11 Floors

In the Head of mission's office, and in the meeting rooms, parquet flooring shall be used. The parquet flooring shall be made of laminated oak of thickness minimum 19 mm, laid floating on a layer of felt, or similar. Minimum three samples of the parquet shall be provided to the Client who will decide in consultation with the Ministry of Foreign Affairs, Department of Property Management, the type, colour and pattern of the parquet.

If not otherwise specified by the Client, the remaining floors shall be covered by linoleum or allergy friendly carpet tiles of good quality. Minimum three samples of the available brands, colours and pattern shall be presented to the Client for selection.

In the "Strong Room" one safe may be placed. The weight of this safe may be in excess of the general structural strength of the floor slab. Accordingly, the exact position of the safe must be decided in cooperation with the Client, and the Contractor must consult with the structural engineer for the building to ensure that the location of the safe is in order. In case the floor slab is too weak for the weight, the safes may be placed upon a structural steel plate, which will distribute the weight to an extended area.

12 Ventilation

The room designated "Server room" shall be provided with a separate 24/7 ventilation / cooling unit which shall keep the temperature in the room at an even level of around 20 degrees Celsius.

The Contractor shall install the mechanical ventilation system for the premises in accordance with the new floor layout plan. The contractor will be requested to calculate the capacity and complete the detail design of the generators and the reticulation system to ensure appropriate ventilation of all the rooms in the premises.

Required ventilation in the various rooms shall be approximately 8 – 10 cubic metres per square meter of floor area per hour.

All rooms shall have cross ventilation, i.e. the distance between the supply jet and the extract jet shall be as long as possible and should preferably be located on either side of each room.

The maximum noise level from the ventilation system in each room and in the corridors and common areas shall not exceed 40 decibel.

The design parameters for the temperature in the premises, except for in the server room as mentioned above, shall be 18 – 28 degrees Celsius.

13 Plumbing and mechanical installations

In the new kitchenette and in the washrooms / showers and toilets the Contractor shall supply and install plumbing for hot and cold water supply.

In the kitchen, the contractor shall supply and install drain to the new sink and the dish washing machine, which shall be supplied and installed integrated into the kitchen worktop, as indicated on the floor plans.

14 Kitchen/kitchenette/pantry

The Contractor will be requested to supply and install new kitchen units with integrated facilities with Hot and cold water in the location designated as “kitchenette” and as indicated on the plan drawing.

This also includes the actual workbench top, which must be made of solid hard wood preferably of oak. Solid Corian material may also be considered.

The kitchen units must provide space for and include water and electricity supply for an integrated dish washing machine and a fridge, which shall be supplied and installed by the Contractor, unless otherwise decided by the Client.

The Client must approve the type and design of the kitchen units.

Also space must be made available for the supply and installation of a double plate electric cooker on top of or integrated in the new workbench top, as indicated on the drawing.

A ventilator hood shall be supplied and installed over the cooker.

Above the worktop the Contractor shall supply and install a wall cupboard with two nos. of shelves. The wall cupboard shall have the same length as the workbench. The cupboard shall be supplied with doors. The top of the cupboard must match the top of the adjacent door and the spacing between the worktop and the underside of the wall cupboard shall be approximately 450 - 500 mm.

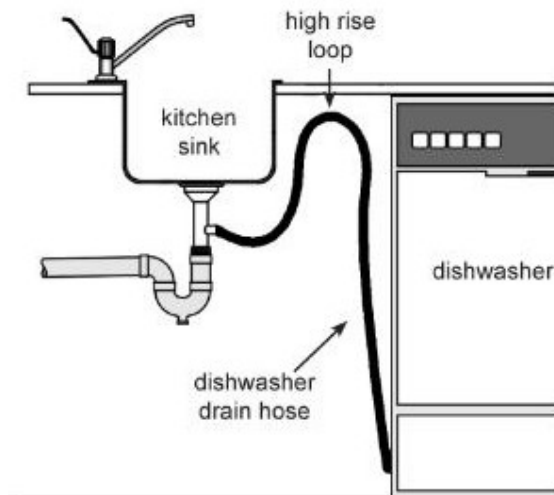
Ceramic tiles shall cover the wall area between the worktop and the underside of the wall cupboard, e.g. tiles of 150 x 150 mm in size and cobalt blue in colour.

Fluorescent lighting shall be supplied and installed on the underside of the wall cupboards, with minimum one double socket outlet integrated in each light fitting to provide power supply for coffee machines etc.

Summary: Kitchen / Kitchenette / pantry must include the following:

- Integrated appliances (dishwasher, fridge, microwave oven)
- Access to power for electrical appliances, including coffee machines, water boiler etc.
- Drinking water
- Hot and Cold water
- Basin + drain
- Worktop and cupboard
- Sufficient lighting

Note: Dishwasher must be connected to sink drain/ water lock system in a proper way. See picture: Dishwasher drain hose



Picture: Dishwasher drain hose

15 Modification to Existing Building Services

Project Manager must ensure that any necessary modifications etc. required to the existing mechanical and electrical services systems; HVAC (Heating, Cooling and Ventilation), electrical, general basic lighting, PVC hoses for IT, automatic fire detection and alarm systems, sprinklers, fire hose reels, portable fire extinguishers etc. will be designed to a level of detail and costed accordingly taking into account the new layout drawings so that the bid cost is truly representative of these elements.

16 Miscellaneous

Security grilles/ burglar bars:

The Client will decide whether security grilles shall be supplied and installed in front of any windows and / or doors, and the Contractor will be instructed in due course of any such requirements. The opening that is most likely to be provided with a security grill is the emergency exit door(s) leading into the "passage" bypassing the premises of the Consulate.

17 Electrical installations

Guidelines for new Building projects the Royal Norwegian Ministry of Foreign Affairs.

17.1 Lighting

All rooms shall be provided with separate circuits and supplied with light switches next to the entrance door to the room. The separate circuits shall be connected to the central switch panel board for lighting control.

Required general level of light in each room for work and permanent occupancy shall be 400-500 Lux.

It should be kept in mind that the light fittings must provide an even light suitable for a computer environment, i.e. without glare. Lighting for the workstations shall preferably be provided by suspended light fittings, providing 75 % up light towards the ceiling and 25 % down light. Modern Led based light is preferred to save energy.

In the corridors, the meeting room, the kitchen area and in the waiting areas lighting may be provided by down lights recessed in the ceiling. Some of these fittings should be adjustable so their light beam may be directed and act as wall washers. The Client should approve the design and brand of the light fittings.

On one of the walls in the office of the Head of Mission a portrait of the Norwegian King and Queen will be fixed. The exact position of the portrait must be agreed, and a special spotlight must be installed and connected to enlighten this portrait.

In case of lighting motion detectors. These detectors will not be accepted in certain rooms like Strong Room / Archive 2 or in server room.

17.2 Power Supply

Each workstation requires a minimum of three double socket outlets to be provided.

The fuse groups, should be evenly divided throughout the office. No more than 5 workstations/ offices should share one 230v 16 Amp. Fuse group.

In addition to the sockets for the office equipment, an appropriate number of outlets must also be supplied and installed in other areas for miscellaneous use: (Power for lamps, extra equipment, vacuum cleaners etc).

In the room designated "Strong Room" a number of double socket outlets shall be supplied and installed. However, these shall be connected to a separate dedicated 230v 16 Amp. circuit.

In the room designated "Server Room" a number of double socket outlets shall be supplied and installed. However, these shall be connected to a separate dedicated circuit. One Double socket (dedicated 230v 16 Amp. Circuit) is to be located directly above or below server rack. *(See picture: Server room)*

17.2.1 UPS

In regions with unstable power infrastructure, a backup system for electric power may be required. In these instances the entrepreneur may be required to supply Diesel generators and UPS (Battery backup power) for the emergency light and computer network equipment.

If the office is set up with a centralized UPS Two of the double socket outlets should be reserved for power supply to the computer equipment. These outlets should be marked by a signal colour or similar to avoid misuse.

Server rack will always be equipped with a UPS provided by the Norwegian MFA. This UPS will only support the server rack and the equipment within.

18 Fire detection and suppression system

18.1 Fire detection system

Approved smoke detectors, fire alarms and emergency lighting must be provided and installed in accordance with the local fire code.

The completed fire alarm system, the fire escape routes and the firefighting equipment must be commissioned and approved by the local Fire Department before the premises are handed over to the Client.

18.2 Fire suppression system

Fire suppression systems must be in accordance with Local law and building codes.

The Royal Norwegian Ministry of foreign Affairs do not have any requirements for specialized suppression systems in technical room such as FM200

19 Intrusion alarm

Modern and reliable alarm systems must be included in the project. All pipes and ducts should be planned and installed in the construction project to avoid surface mounted conduits. Any necessary purchases of equipment and services will be done by the present Norwegian foreign mission. 220v/110v outlet must be provided for this equipment.

On/off panel is to be located inside the sluice. Main panel to be located in a dedicated area in the server room.

Planning, cabling, installation and programming of the Intrusion alarm must be done during the construction period. The Intrusion alarm must be fully operational at the time of handover.

20 CCTV/ Camera Surveillance

The offices of an Norwegian foreign mission will in some instances need camera surveillance. It is important to plan and include this installation in the construction project. CCTV recording device must be installed in a separate cabinet or location in the server room. 220v/110v outlet must be provided for this equipment.

The CCTV system must be an offline system without remote access.

The server must be able to record high quality video and to store this video for a minimum of one week.

The CCTV server must be a complete independent system, and will not be connected to the main data network.

Planning, cabling, installation and programming of the CCTV system must be done during the construction period. The CCTV system must be fully operational at the time of handover.

Monitors

Normally there will be required two monitors. One in the main reception and one at the server location.

21 Cable ducts / Cable raceways

In order to ensure that the installation of the computer network and a telecommunication network at the mission proceeds as smoothly and reliably as possible, it is important that the cable ducts are installed in accordance with the following specifications:

3 Ways of installing cable ducts:

Wall:	Surface mounted PVC Conduit (See picture: PVC Conduit)
Ceiling:	Cable Ladder above removable ceiling panels (See picture PVC Conduit)
Floor:	Cable conduits below raised floor tiles (See picture surface mounted PVC Conduit) Or Tubes / Pipes in floor.

A combination of the above is often a solution in many projects.

Regardless of the type of installation, the cable duct/conduit or cable raceway is to be installed in one unbroken length from the server rack and throughout the office.

The ducts must be laid as close to the workstation as possible. In cases where tubes are used as conduits, a pull line should be inserted to make it easier to install the cables. The tubes must be no less than 16mm in diameter for each of the three cables. Preferably we ask for **two** 25mm/1-inch pipe to be installed for each tiple outlet.

21.1 Wall:

In those cases, where the premises will have surface mounted PVC conduits (See picture: PVC Conduit), the conduit must have separate chambers for low voltage data cables and high voltage power cables. Conduits must be calculated according to number of data and power cables. Separate routes to limit size of PVC conduit to must be considered. (See picture: Recessed wall boxes (European standard) and Recessed wall boxes (US standard))

21.2 Ceiling

In those cases, where the premises have removable ceiling panels, cable ladders (400 mm wide) are to be installed throughout the office. Pipes or tubes (2 x 25mm/ 1 inch) are to be installed from the cable ladder to each workstation in one unbroken length, and with pulling wires in each tube/ pipe. All tubes / pipes must be mounted firmly. Preferably the tubes are to be installed inside the partitions and mounted in a recessed wall box. (See picture: recessed wall boxes and Recessed wall boxes (US standard))

21.3 Raised floor:

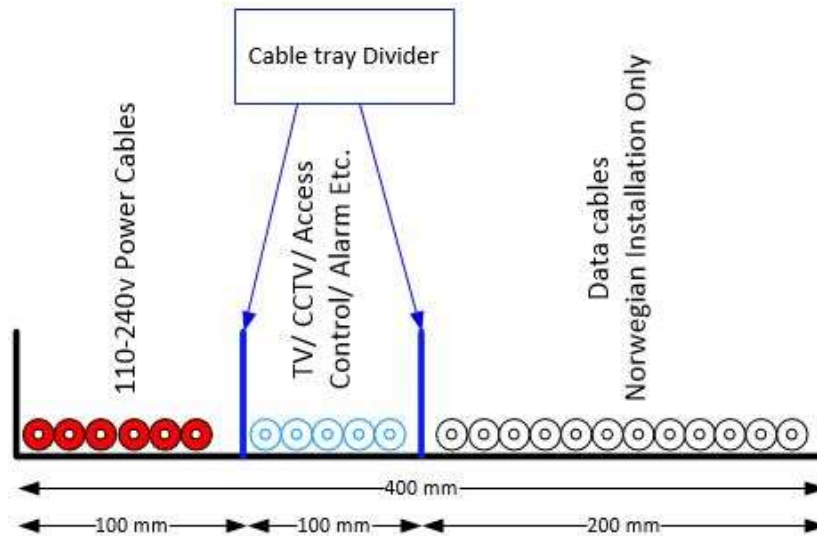
Cabling below raised floor must be done using cable trays in an unbroken length from server rack to each floor box in offices, printer/ copy room, meeting rooms etc. If the proximity of the main cable tray is not corresponding to the furniture plan a set of pipes/ tubes (with pull cord) or smaller cable conduits can be used to connect to the floor box.

The raceways must be installed with a divider in case cable raceways also will be used for high voltage power supply. (See picture: Cable Ladder / Cable Tray 1 and 2)

NOTE: All workstations/offices, printer areas, meeting rooms etc. will be equipped with 3 x Cat. 6A, RJ45 STP cables. Cables measures approximately 8mm in diameter. All internal data / Phone cables will be installed by client after end of construction.



Cable Ladder / Cable Tray



Picture above: Cable Ladder / Cable Tray 1

Picture: PVC Conduit

Dimensions must be calculated by the amount of cables. A divider is required in cases where electricity cable also will be installed in raceways.



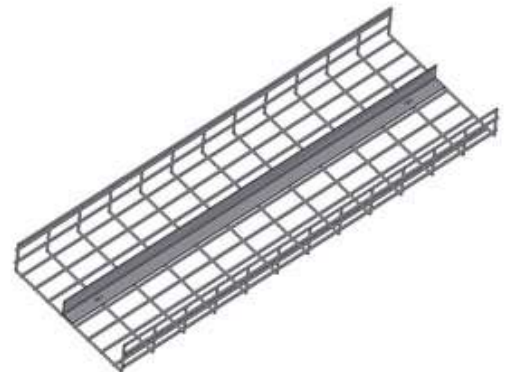
Picture: Cable pipe/ Tube

2 x 25mm/ 1 inch.
Or 3 x 16mm for each workstation/ printer etc.



Picture: Cable Ladder / Cable tray 2

W: 400 mm / 16 inch throughout main corridor. A divider is necessary if shared with high voltage power cables.

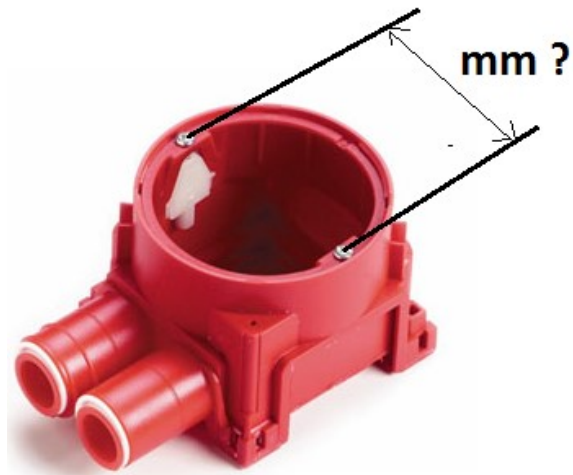


The Norwegian company in charge of the cabling will need dimensions and mounting options in case of wall mounted recess boxes. One twin flush box or two single will be necessary. (Norwegian standard dimension for mounting fixture is 60mm.)

Twin box



Single box



Picture above: Recessed wall boxes (European standard)



Picture above: Recessed wall boxes (US standard)

Other standards

It is also possible to use other international standards. Details to be agreed upon prior to installations.

21.4 Vertical shafts

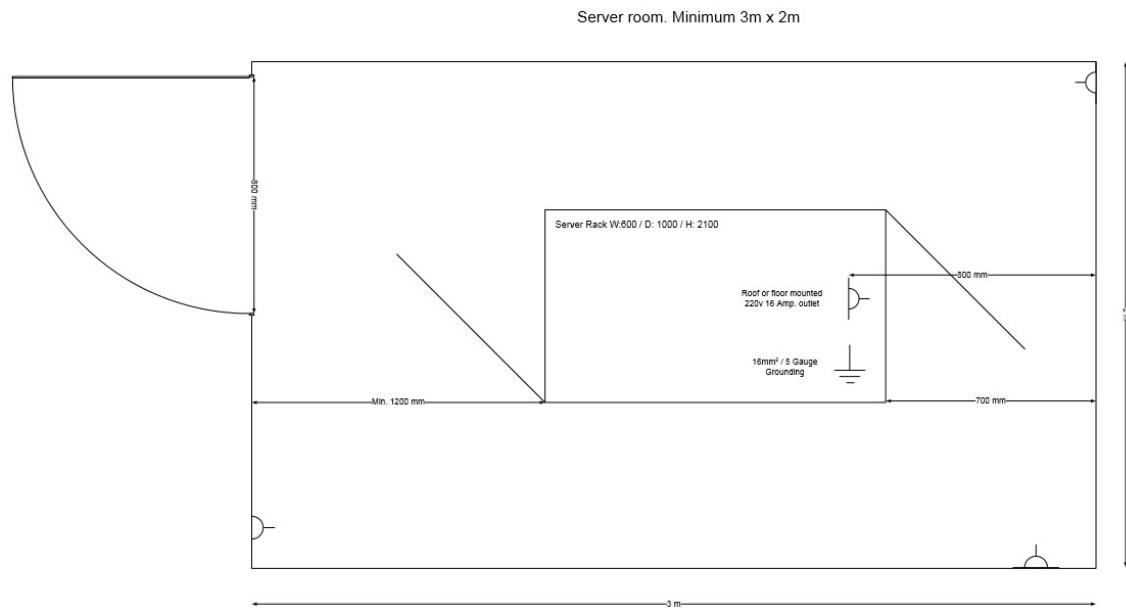
In projects where the office spans over two or more floors vertical shafts must be located close to the server room preferably inside the server room to simplify the cable installation and to reduce the total length of cable infrastructure to other floors.

22 Server room

- The Server room is to be no less than 6m². And no less than 3m x 2m.

- If the building cannot provide 24/7 Air condition in the room, an Independent cooling unit with approx. 10 - 12000 BTU / 2900 - 3500 W*. Must be *Installed above door, or close to door (NOT above server rack)*. **NOTE: The A/C Unit must be connected to a dedicated circuit. Furthermore, A/C Unit must have an Auto Startup function installed and activated in case of power outage.**
- One 16mm² / 5 Gauge (US Standard) independent Ground cable from main Ground in building.
- We require the telephone subscriber's lead-in cable to be at least: 20 pair copper cable ended in RJ 45 Patch panel. Fiber optic cables can compensate if available.
- One 230v 16 Amp. dedicated circuit for the server rack in ceiling/ on cable ladder above server rack or in floor below the server rack. (see drawing). Light, A/C and other equipment in this room must use other circuits.
- If local building codes require Ground fault protector (Residual-current device), this must also be a dedicated circuit.
- The Server Rack is to be placed in the middle of the room, giving us access to all sides. Minimum 3 sides if space does not allow this.

* Local climate must be taken into considerations

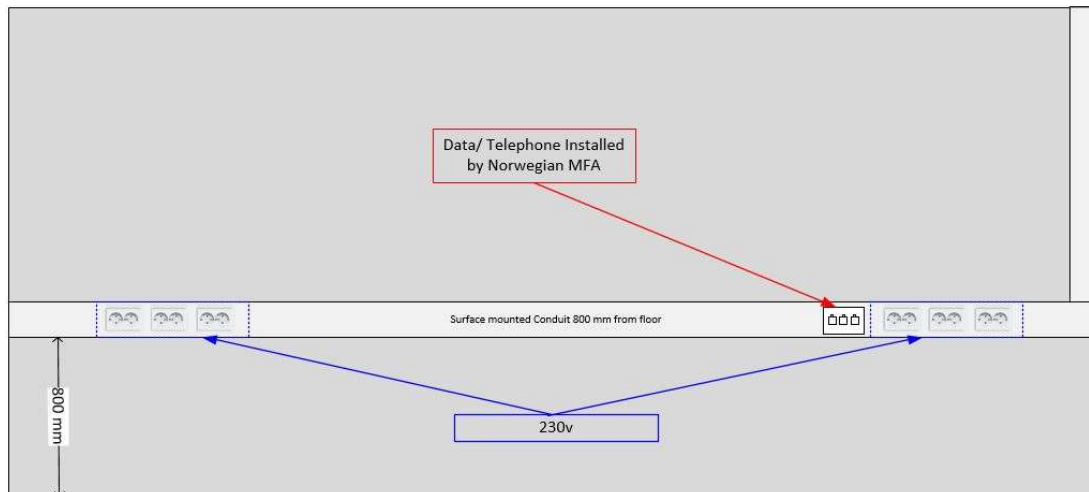


Picture: Server Room

23 Strong Room / Archive 2

- The Strong Room is to be no less than 6m². And no less than 3m long and 2m wide.
- Air condition. Operational 24/7.
- 4x Two way outlets 230v 16 Amp. Dedicated circuit. One outlet on each wall.
- All cables and pipes for A/C and electricity must be visible or in surface mounted conduits. (No internal cabling in walls, floor or ceiling is allowed). (See picture: Archive 2 conduits)

- No cabling or piping for A/C, electricity, water etc. for adjacent rooms is to be run through Strong Room. These must be routed passed Strong Room, on the outside. Only piping and ducting for use in Archive 2/ Strong room is to be installed in this room.
- No fire alarm or fire/ smoke detection system is to be installed in this room, unless this is required by local building codes.
- No motion detectors will be accepted in this room.



Picture above: Archive 2 conduits

24 Visa Archive

Walls must be constructed slab to slab with normal ventilation and fire suppression systems.

25 WIFI

There is a requirement for a number of WIFI hotspots. The number and location will change in each instance according to building structure, number of floors etc. For each WIFI outlet there is a requirement for one 16mm pipe with pull cord to be installed in one unbroken length to the main data conduit.

Wi-Fi antennas is normally installed approx. 20cm below suspended ceiling. All antennas will be installed by Norwegian MFA.

No external power source is needed for this purpose.

26 Audio Video Equipment

In general, foreign missions will usually require several TVs installed throughout the office. The installation will normally require a signal cable (VGA + HDMI) installed between the meeting table and TV/Projector. In larger meeting rooms, a projector and speaker system may be required.

In every meeting room with a TV or Projector a local TV service (Cable, Internet TV or Sat. TV) must be planned, installed and tested. In addition, Ambassadors or Consulate Generals office will need TV service.

27 Satellite Dish

In some cases the foreign service missions will require a satellite dish. This antenna can be placed directly on a concrete slab on the ground or on roof.

På de ambassadene hvor IKT leverer VSAT kommunikasjon vil antennene kreve solid feste. En site survey vil i hvert enkelt tilfelle vil bestemme plassering og fundamenteringsmetode for VSAT-antenna.

Det benyttes stort sett to metoder: «Pedestal Mount» eller «Non-Penetrating Mount». Pedestal mount benyttes ved montering på bakken. Non-Penetrating Mount benyttes ved montering på tak, og er den foretrukne metoden.

Pedestal mount: Krever et støpt betongfundament med følgende størrelse:

2,4m antenne: 4m*4m

3,8m antenne: 4,5m*4,5m

Tykkelse på platen bestemmes ved site survey.

Non-Penetrating Mount: Antennefundamentets bein boltes fast til underlaget eller til en stålramme som holdes på plass med ballast. Ballast er den foretrukne metoden.

Stålrammens størrelse:

2,4m antenne: 4,5m*4,5m

3,8m antenne: 6m*6m

Mengden ballast bestemmes ved site survey hvor antennens størrelse og forventede vindstyrker er de viktigste faktorene. Standard ballast for en 2,4 m antenne er ca 1200 kg.

28 Blast Foil

In some cases, all glass partitions, windows and glazed doors must be equipped with blast foil. The contractor must provide and install blast foil upon request by the client. The blast foil must meet the following standards of minimum durability and strength (*3M Safety & Security Window Film Ultra S600 is used as a reference point*):

Tensile Strength:	30.000 psi
Break Strength:	180 lbs/in
Elongation at Break:	> 125%
Graves Area Tear Resistance:	1,150 lbs%
Puncture Propagation Tear Resistance:	19.2 lbf
Young's Modulus:	<500 kpsi
Abrasion Resistance:	< 5% haze increase

29 Bullet resistant Security Counter - Reception / Interview Room

Every foreign mission is equipped with a combination of One main receptionist Counter and one or more Interview Rooms / Visa counters or one combined Counter. The security counter must be equipped with an integrated two way communication system and document exchange hatch/ drawer. (See picture: Example - Bulletproof Sliding tray (Würster Model 30))

The security counter and communication system is normally supplied by the client. However, this equipment can be procured locally if available. (See picture: Example - Bullet Resistant reception glass) and Picture: Example Bullet proof reception glass

Minimum standard:

Glass Security Standard: BR4, EN1063 (NS)

Steel Security Standard: FB4, EN1522

29.1 Receptionist Counter

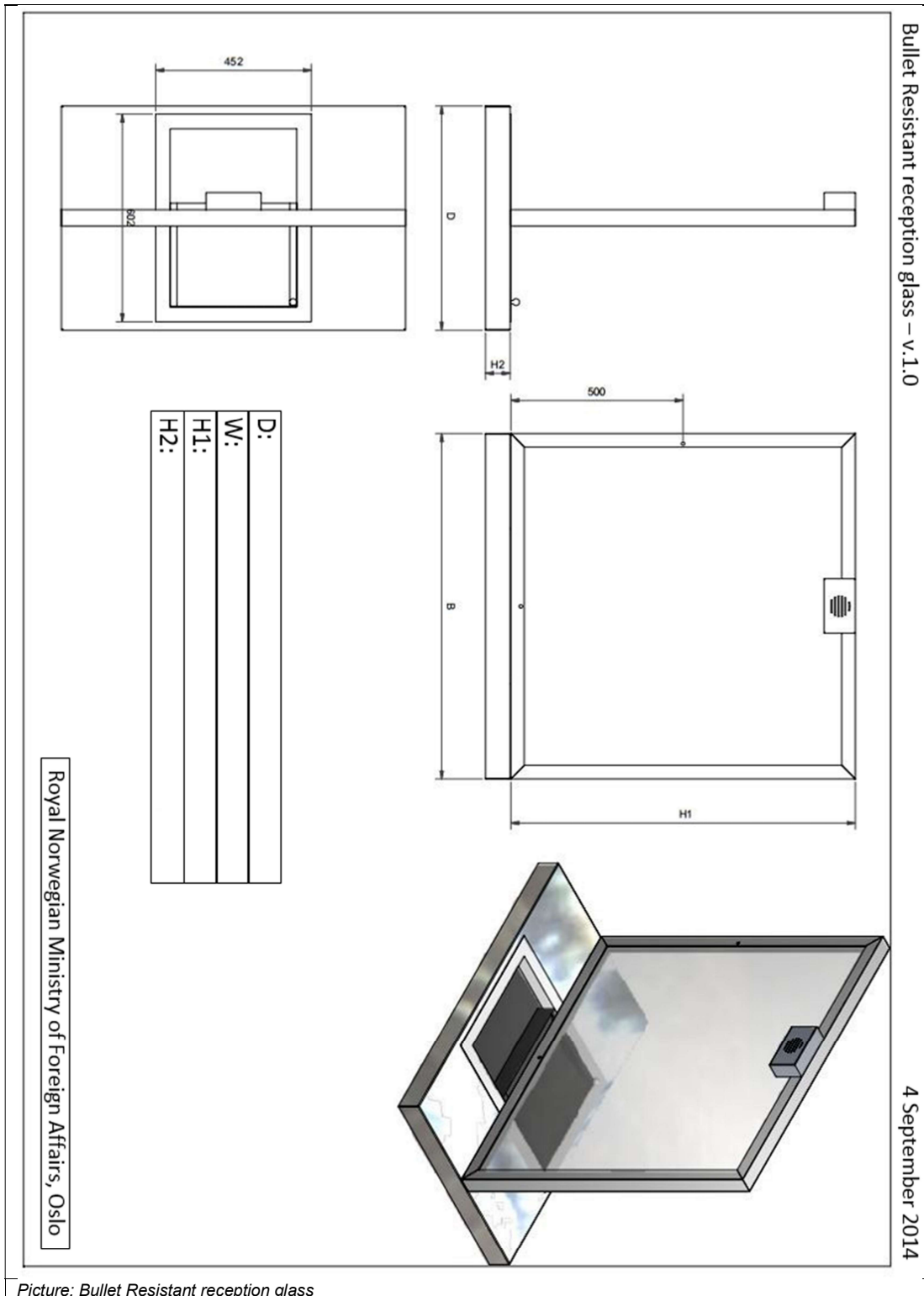
Main receptionist is placed in the vicinity and in plain view of the main entrance / Man trap. Receptionist is also equipped with the remote operation system for the Sluice doors / Man trap.



Picture: Example - Bullet proof reception glass



Picture: Example - Bulletproof Sliding tray (Würster Model 30)



29.2 Biometric room / Interview Room

A number of biometric / Interview rooms may be required. The rooms will be setup for interviews and collection of biometric data for visa and passport applications.

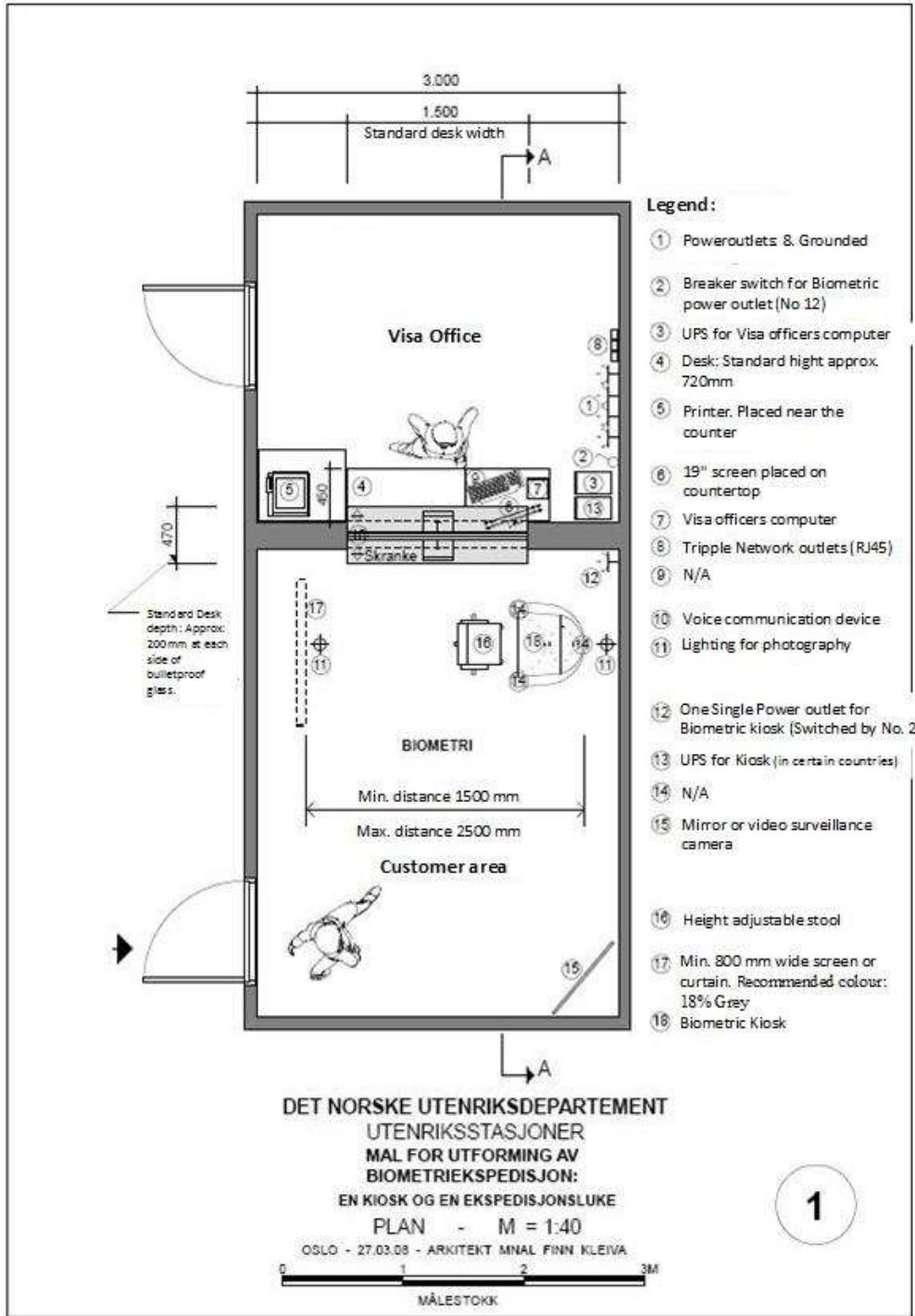
Certain security and privacy must be in place to fulfil both the customer and the visa officers security and privacy. For this reason sound reduced walls and doors for the privacy of the customer must be constructed. Furthermore a bulletproof wall with a bulletproof service counter will be installed. Counter with communication device will be provided by client.

All installation and testing of counter including communication devices will be done by contractor.

(See picture: Biometric Room Overview, Double Biometric Room with open solution, Biometric Room Profile and Picture: Biometric Kiosk. Tech Details.)



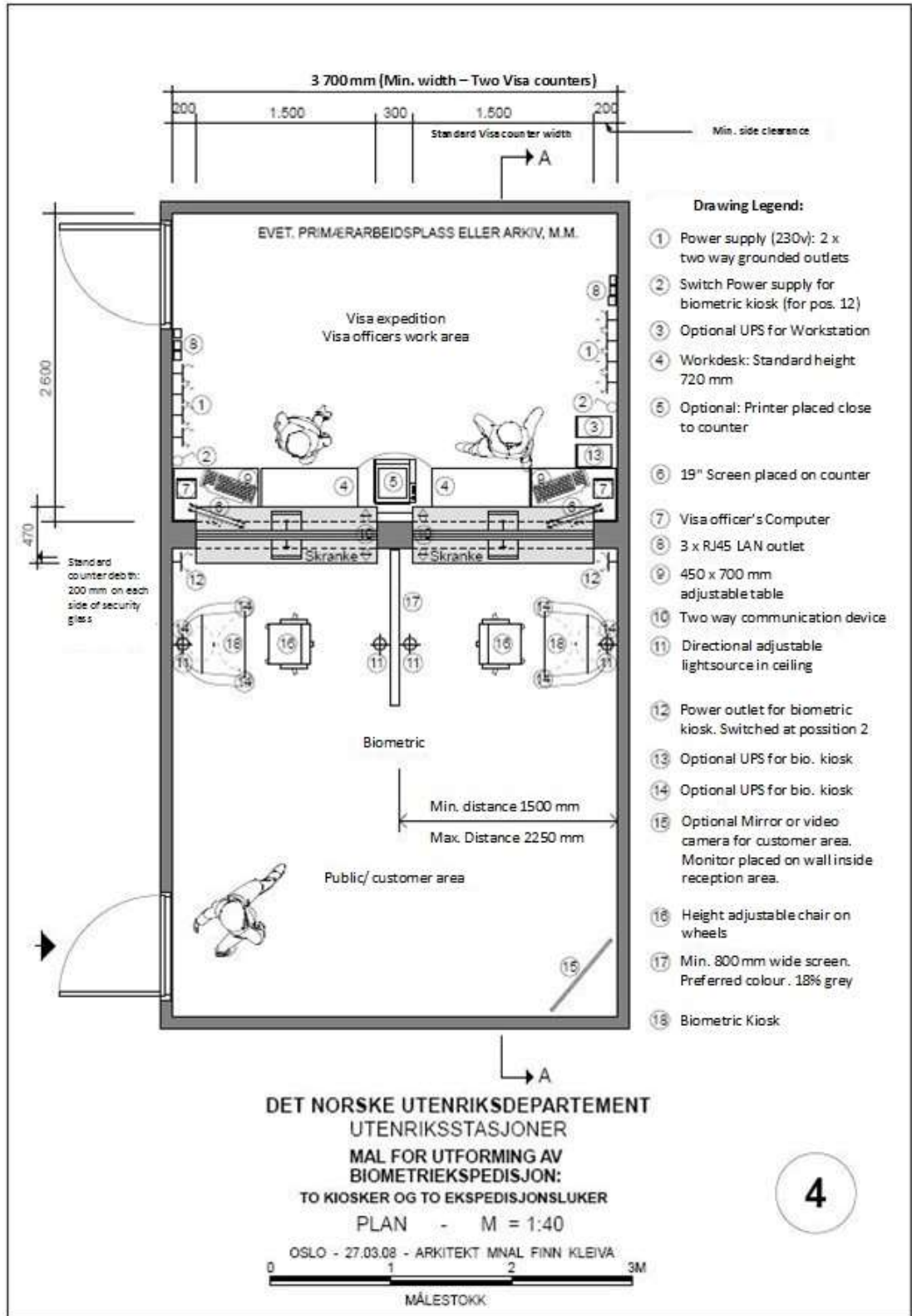
MFA - Norway Biometric Room – Standard Layout:



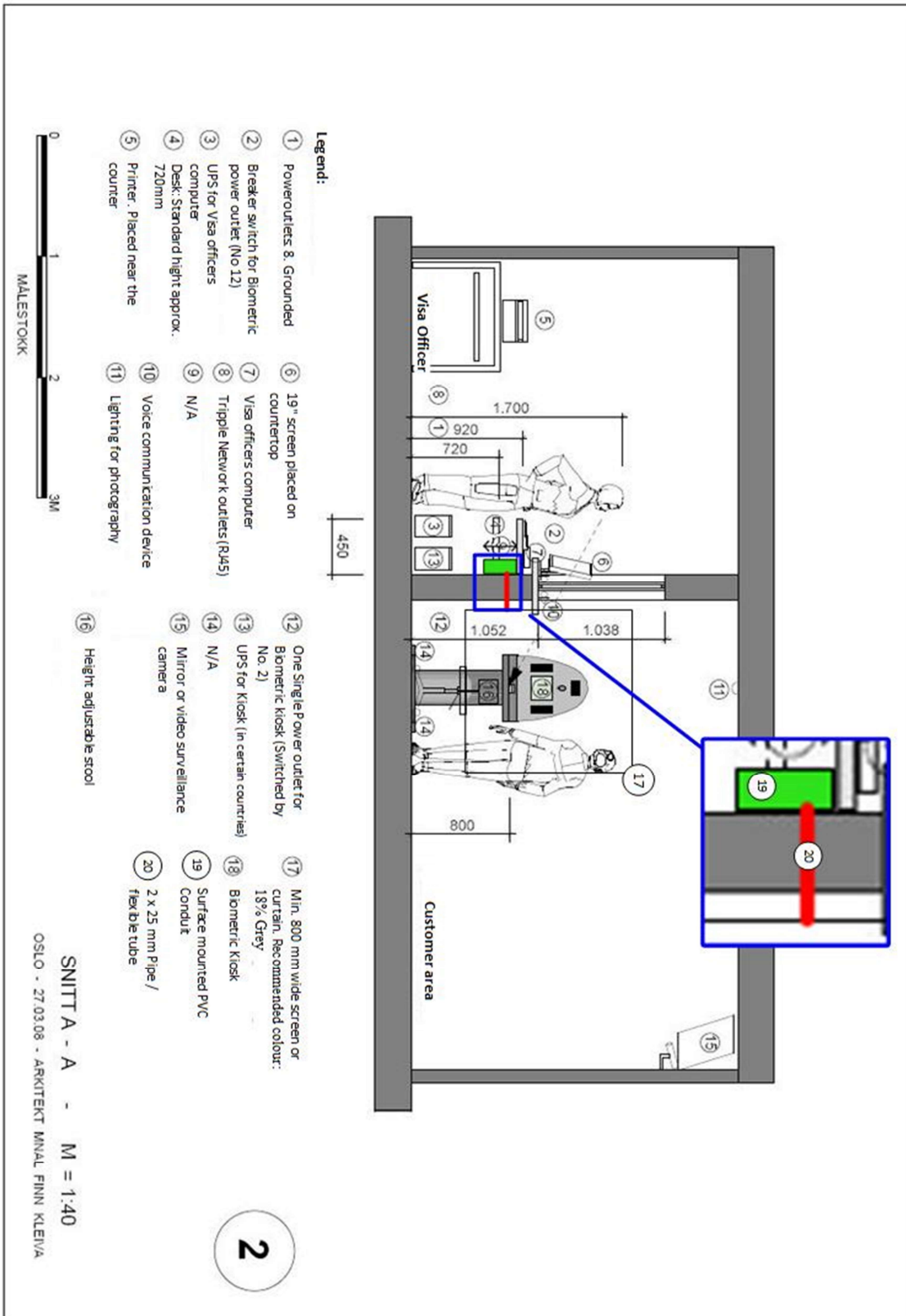
Picture: Single Biometric Room Overview



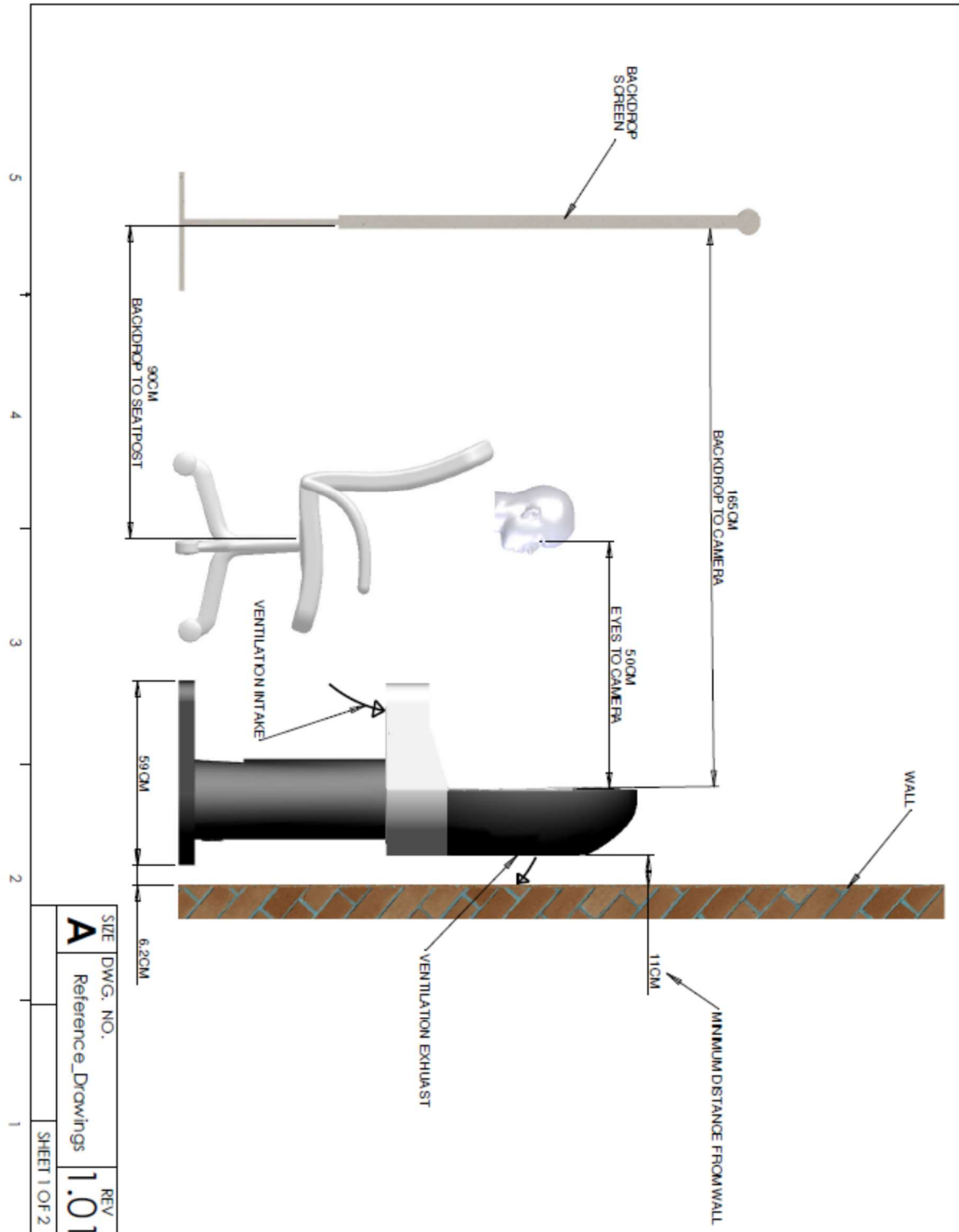
NORWEGIAN MINISTRY
OF FOREIGN AFFAIRS

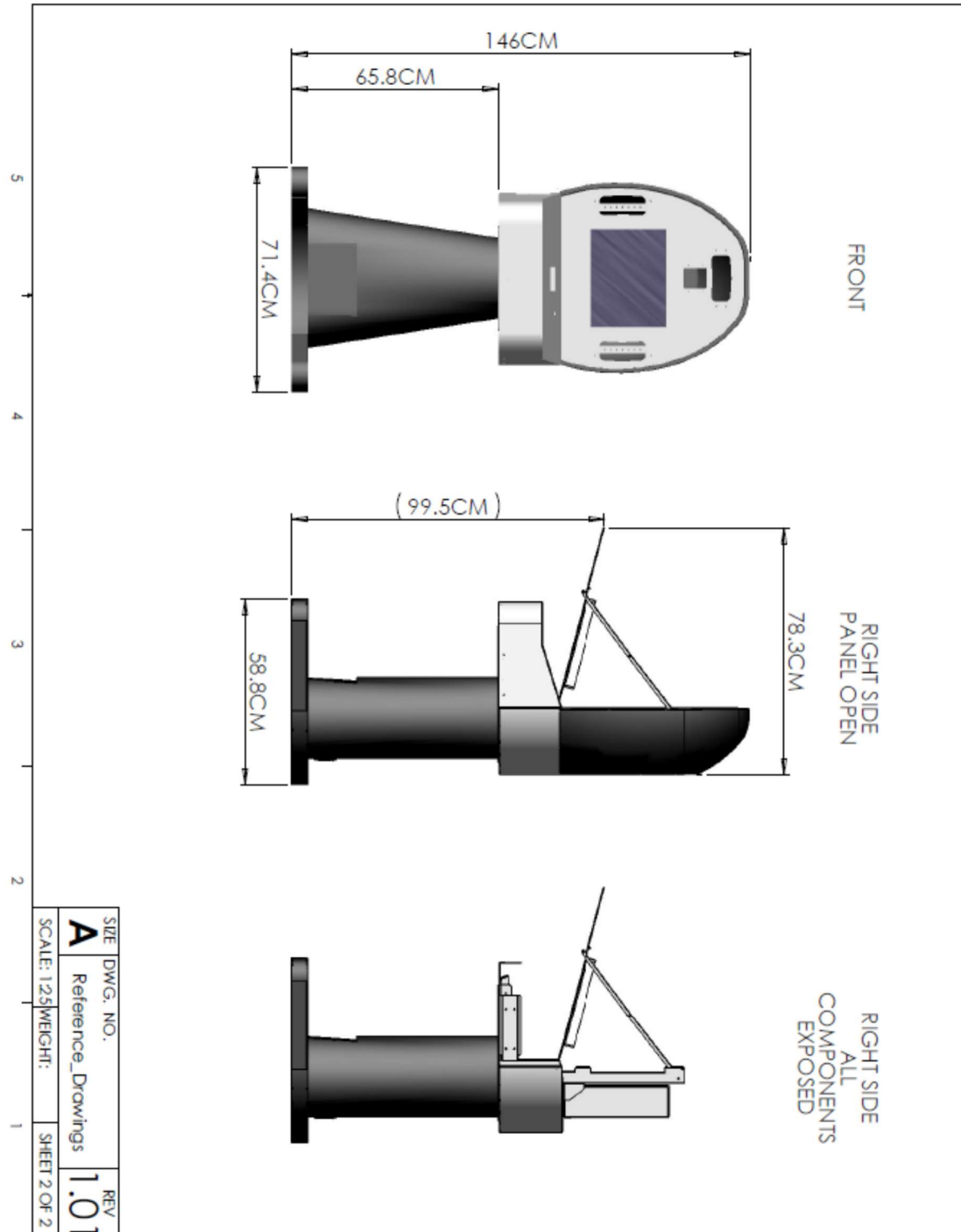


Picture: Double Biometric Room with open solution



Picture: Biometric Room Profile





Physical dimensions and technical needs:

Technical needs - Visa Officer's Desk:

1 Data outlet: RJ45
Power Source for Computer / Screen
19" Screen
Computer H: 50mm x W:200mm x D:200mm (Small form factor PC)
Keyboard / Mouse

Technical need - Customer side:

1 Data outlet: RJ45
1 Power Source switched from the inside. At Visa Officers desk
3 x USB connectors between Visa officers computer / Customer side. (For future purpose)
1 Biometric Kiosk:
Sufficient light for photography (500 Lux?)

Biometric Kiosk:



Physical dimensions Biometric Kiosk:

Height:	146 cm
With:	54.4 cm
Debth:	56.1 cm
Base With:	71.5 cm
Base debth:	60.45 cm
Weight:	68 kilos

Picture: Biometric Kiosk. Tech Details.