



OUTDOOR KIOSK DESIGN

Appendixes



A.M. Renkens (Anke)
s0112895

Envent Pty Ltd
University of Twente

BSc. programme Industrieel Ontwerpen

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THE DESIGN OF AN OUTDOOR KIOSK

BSc. programme Industrieel Ontwerpen

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A.M. Renkens (Anke)
s0112895

This appendix is written within the scope of the BSc. course 'Bachelor Eindopdracht'.

Envent Ltd Pty

Unit 3
2 Gladstone Street
Enmore
NSW
Australia 2042



University of Twente

Industrieel Ontwerpen
Faculty of Engineering Technology
P.O. Box 217
7500 AE
Enschede
The Netherlands



Examination committee

Prof.dr.ir. A.O. Eger
Ir. M.E. Toxopeus
J.L. Dean BDID, MDIA

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A.M. Renkens (Anke)

Contents

Appendix A competitors collage	4
Appendix B Envent design brief	5
Appendix C Australian Standards	14
Appendix D observation	22
Appendix E stakeholders	27
Appendix F all ideas	28
Appendix G design 1 - 5	33
Appendix H design A - B	38
Appendix I advantages vs. disadvantages	46
Appendix J CAD drawings	50

Appendix A | competitors collage





TABLE OF CONTENTS

PRINCIPAL CONTACTS	2
OVERVIEW	2
BRIEF AND DESIGN ELEMENTS	4
CRITICAL SUCCESS FACTORS	4
HARDWARE COMPONENTRY CHECKLIST	5
ERGONOMICS	6
HARDWARE	6
TECHNICAL	6
ENVIRONMENTS	6
PRODUCTION/INSTALLATION	7
PHYSICAL ATTRIBUTES	7
Structural	7
Aesthetics	7
Materials	8
BRIEF ACCEPTANCE	8
SCHEDULES AND MILESTONES –KIOSK PRODUCTION	8
SCHEDULES AND MILESTONES –KIOSK PRODUCTION	9



PROPOSAL – OUTDOOR KIOSK

Attn: Justin Dean
Envent Pty Ltd
Unit 3, No. 2 Gladstone Street
Enmore NSW 2048

DATE: 19 January 2009

ENVENT JOB:
VERSION: 1.0

PRINCIPAL CONTACTS

ENVENT Justin Dean – Director	02 9557 8838	Justin@envent.com.au
ENVENT Anke Renkans – Designer	02 9557 8838	anke@envent.com.au

OVERVIEW

In this age of high competition and short product lifecycles, it is imperative that companies pioneer new technologies that keep them ahead of the field. It is with this vision and drive that Envent have set out to innovate and create new technology within the kiosk industry.

Envent really have previously pioneered the use of touchscreen technology at their head office premises at Enmore. This technology in combination with the envent website, has attracted numerous industry leads and opportunities.

A host of informational and transactional possibilities are attainable through the use of the kiosks as E and M Commerce solutions are now becoming the norm in many industries. It is Envent's vision to bring this technology to the public domain in an External Kiosk(EK) application and lead the competition into the future.

The design of the EK will encompass dynamic functionality allowing potential clients to engage in a variety of tasks via the website. These tasks include:

- Viewing web based and locally driven content
- Selecting various applications through a touchscreen interface
- Make transactional payments through a secure payment gateway
- Liase with sales staff and consultants through an optional handset for appointments and information
- Generate additional revenue through advertising 3rd party vendors through the dual screen technology
- Output devices including thermal printing and card issuers /encoders for statements and collateral
- Centrally hosted content managed at a central server

The main aim of the EK is to be decentralised and located into the public arena. The EK needs to be weatherproof and IP rated to an equivalent IP 65 level.

With each EK being sold as a franchise the aim is to standardise the marketing and information output to build the ENVENT Brand.

The Physical design needs to incorporate many different ergonomic and aesthetic characteristics. The appearance will be modern, utilising the latest in design and production materials and techniques.





Corresponding modularity is essential in the final design. Allowing for easy assembly and scalability for additional functionality.

Styling is open ended at the moment. Taking into consideration literal elements that are intrinsic to the building industry ie Materials and look and feel. Style guide will be provided by Envent for colours, images, branding and logo interpretation.

This option is based on designing a completely new kiosk unit which will meet all of your specified requirements.

The final per unit costing will be largely governed by you and will be determined by:

- a. your preference in design
- b. your choice of materials and finishes
- c. scalability
- d. Maintenance
- e. Component quality

The following brief enables us to determine and specify the known parameters of this project. These elements that will be outlined are:

- Styling characteristics
- Aesthetic wants
- Ergonomic standards
- Electrical standards
- Functional requirements
- Scalability and future proofing
- Hardware Specifications and peripherals
- Production methods and considerations
- Prototype Budget
- Design schedule and milestones
- Testing and production requirements
- Supplier and Vendor procurement and
- Production management





BRIEF AND DESIGN ELEMENTS

CRITICAL SUCCESS FACTORS

- The terminal is to be innovative and high-tech, excelling in the areas of usability, serviceability, scalability and aesthetics.
- The advantages of the new product will be to combine the self service payment functionality of the new design into an information kiosk. It is to be approachable and user friendly.
- Ultra modern and stylish design that is instantly recognisable as a Envent brand Product
- Timeless design styling and philosophy
- Robust and weatherproof construction.
- Durable materials
- Ease of servicing and replacement of hardware.



HARDWARE COMPONENTRY CHECKLIST

COMPONENT	Shaded is required
Monitor	18"
	17"
	15"
	18" Ultra Bright
Touch screen	Standard
	Tough Touch
	NFI
Ruggedised Pin Pad	
Keyboard	Standard
	With trackball
	Web keys
Cardreader	Magnetic
	Smartcard
	Hybrid
Printer	BOCA
	Thermal A5
	Thermal A4
	Dot Matrix
	Colour
Camera	Kensington
Fingerscanner	
Transaction	Coin
	Note
Speakers	10 Watt Standard
2nd monitor	15"
	18"
	Plasma
PC	Thin Client
	Embedded PC
	Standard Desktop
Signage	Interchangable
	Backlit
	Front branding
	Embedded
Ventilation	
Shroud	
Weatherproof	
Proximity Sensor	
Waste Bin	
Handset	
Microphone	
Intercom	
Sound System	



ERGONOMICS

- The design is to meet all standards relating to AS 1428.1 – 1998 and AS 1428.2 – 1992 Design for Access and Mobility, as well as AS 3769-1990 Kiosk User Access.
- The viewing angles of all screens is to be optimised for all users, taking into consideration glare and reflections
- Easily removable Signage and graphic panels
- Weatherproof, sealed dust/ water proof to suit IP Rating 65.
- User comfort is to be increased through the correct selection of materials around the user interface
- The terminal is to be accessible for all required maintenance and removal/addition of components
- Space should be provided for users to place personal items or take notes from the onscreen information
- All outputs, such as printer outputs and handsets should be a minimum distance from the touchscreen.
- The ergonomics of each item of hardware to be integrated is to be considered case by case
- PC, printer, touchscreen, monitor, LCD, (Hardware) are to be easily accessed for maintenance
- User privacy is to be considered in the design as some information may be of a sensitive nature.
- If a printer is provided a waste receptacle is to be considered in the design, the emptying of which should be as easy as possible
- The ergonomics of the installation is also to be considered, such as the weight of the components and variation in floor materials/ levels.

HARDWARE

- The component list comprehensively covers all of the hardware that is to be integrated into the design.
- The design is to be scalable to allow as many combinations of hardware as possible to be integrated.
- All of the hardware integrated is to have a C-Tick and CE rating
- All components are to be earthed
- Any moving components such as draw runners are to be securable in appropriate positions
- In the event of component failure, all hardware is to be easily "hot-swapped"
- Hardware specifications will be finalised once software constraints have been taken into consideration

TECHNICAL

- The products will have an open architecture to allow flexibility in the number and choice of peripherals.
- Operation of the terminal will be faultless and all components within are to be easily maintained and serviced. The terminal may be accessed daily.
- Consideration of future advancements in technology is to be present throughout the design process to make the product future proof.

ENVIRONMENTS

- The terminal will be required to operate in a range of venues, these include public streets, internal malls, coastal environments and unprotected facades



- Envent will be undertaking research during the concept development stages in order to develop a better understanding of the operating environments of current Kiosks and the issues involved with their upkeep and maintenance
- The design must take into consideration the following:
 - All applicable Australian standards for electrical safety and accessibility.
 - Current KIOSK designs and how this design will be differentiated
 - Lighting levels within different environments, ambient lighting, specific directional and decorative lighting.
 - Ambient and specific noise levels at likely venues
 - The physical space and footprint required for the units and the physical space if any, around the units.
 - The level of security achievable at certain venues.
 - Installation access.
 - Access to power and network cabling.
 - Optional weather proofing for use in outdoor, undercover areas.

PRODUCTION/INSTALLATION

- The terminals will be manufactured and installed by Envent.
- Prototypes of the design will be manufactured by Envent for appraisal.
- All assemblies and sub-assemblies will be optimised to ensure minimal assembly times.
- Fasteners used will be standardised and the variety of fasteners limited.
- The terminals are to be permanently fixed and installed by Envent in every situation
- Installation will take into consideration engineering issues with specific buildings an installation cost will be itemised on any invoice.
- All cabling is to be neat and ordered, the method of re-wiring should be obvious to service personnel

PHYSICAL ATTRIBUTES

Structural

- The terminal must exhibit structural integrity when in use as well as during transport and installation.
- All designed components (brackets, shelves etc) are to be tested at the prototype stage under full loads. All components (hinges, locks etc) are to be selected by their strength rating where applicable and also tested at the prototype stage.
- The design should take into consideration the spilling of liquids, ash and other foreign objects.
- Operating temperatures in a variety of locations including direct sunlight are to be considered and cooling fans included in the design.
- The height of the unit is to be variable to accommodate a range of users and a range of installation situations, for example outside ground level.
- The footprint and overall unit size will be carefully considered to minimise the space required.
- The terminal must be hard wearing, built to withstand very frequent use over a period of years.
- All access doors are to be lockable, utilizing tamper-proof locking systems
- The weight of the fully optioned unit is to be <200kg.

Aesthetics

- Use open ended design philosophy and timeless approach to styling





- The design must be appealing and appear familiar yet innovative to the customer.
- Keywords such as sleek, functional and attractive have been identified as directions for the design.

Materials

- Any exterior materials are to be considered in terms of tactility, scratch resistance, durability, thermal properties and aesthetics.
- Stainless steel, sheet metal, masonry are optional substrates
- All surface finishes are to be hard wearing.
- Where appropriate materials will be non-corrosive or protected from corrosion, taking into account additional atmospheric salinity around coastal areas.
- Repeated use of cleaning agents and solvents should be considered in the specification of materials, foam tapes and adhesives.
- Materials which will resist heat sources such as boiling water and cigarette burns will be used where appropriate.

Consideration will be given to the selection of materials in relation to static requirements

BRIEF ACCEPTANCE

I accept the above Brief and agree to undertake the project by signing below.

Signed

.....

Name

.....

Envent

Date

.....





SCHEDULES AND MILESTONES –KIOSK PRODUCTION

The progression of each stage is reliant of previous stages being signed off by the client. Any delays in these stages will result in an extension of the overall schedule. These changes will be documented and agreed by both parties.

DESCRIPTION	DELEGATION	DUE DATE
PHASE 1 – BRIEF		1 WEEKS
BRIEF	AR	
RESEARCH	AR	
PROJECT SCHEDULE	AR / ENVENT	
PHASE 2 –DESIGN		4 WEEKS
PROJECT COMMENCEMENT OF CONCEPT DESIGN	AR	
PRESENTATION OF CONCEPTS	AR	
CONCEPT SIGN OFF	ENVENT	
FINAL DESIGN SIGNOFF	ENVENT & AR	
PHASE 3 – DOCUMENTATION		3 WEEKS
CAD DEVELOPMENT	AR	
FINAL DESIGN SIGNOFF	ENVENT & AR	
PHASE 4 – PROTOTYPING		5 WEEKS
QUOTATION AND ESTIMATES	ENVENT & AR	
PROTOTYPE BUILD	ENVENT	



Appendix C | Australian Standards

NOTE: figures are removed from this appendix. Important information retrieved from the figures is typed between brackets ([...]).

NOTE: regarding tactile indicators: dots indicate warning, and bars are directional indicators.

AS 3769-1990, Automatic teller machines – User access

4.6 Height of installation

4.6.2 Height zone for the user interface. The user interface of the ATM should be located within a zone which is not less than 685 mm and not more than 1370 mm from the finished floor, and not less than 500 mm from an internal corner.

5.2 In-built lighting

5.2.2 Lighting of the task area. All opaque message areas of ATMs (instructions, keys, etc) should have a minimum illuminance of 200 lx on the plan of the message, preferably provided by in-built local lighting designed so as to prevent any reflections of light sources or flashed luminaire parts in the display. The lighting should not cause any direct glare to the eyes of users.

Amendment No 1. delete existing Clause and substitute:

A maintenance illuminance of at least 160 lx should be provided for all opaque message areas, on the place of the message, preferably by in-built local lighting design so as to prevent any reflections of light sources or flashed luminaire parts in the display. The lighting should not cause any direct glare to the eyes of users.

5.2.4 Lighting for reading. Users will need to read other than the messages on the ATM or its display. There should be a region immediately in front of the machine illuminated horizontally to not less than 200 lx. This illuminance should be achieved at the bottom of the installation zone, extending 400 mm proud of the fascia of the ATM, and is best provided by in-built local lighting. It is likely that a common luminaire could achieve these requirements and those of Clause 5.2.2 by using modern lamps and optical design.

Amendment No 1. delete existing Clause and substitute:

There should be an illuminated region immediately in front of the machine to enable users to read messages other than those on the ATM or its display. For this purpose, a maintenance illuminance of at least 160 lx should be provided in a horizontal plane at the bottom of the installation zone, extending 400 mm from the fascia of the ATM, and is best provided by in-built local lighting. It is likely that a common luminaire could achieve these requirements and those of Clause 5.2.2 by using modern lamps and optical design.

6 Specific design and performance requirements for people with disabilities

6.4.1. Protrusion. Cash, receipt, or any other document issued from the ATM for withdrawal by the user should protrude not less than 30 mm beyond the fascia of the ATM and any surround around a slot.

NOTE: It may not be possible to achieve such a protrusion with a plastic card.

6.4.2. Clearance. A clearance of not less than 50 mm should be provided from both surfaces of cash, card, receipt or any other document from the ATM for withdrawal by the user.

AS 1428.1-2001, Design for access and mobility, Part 1: General requirements for access – New building work

6 Handrails and grabrails

6.2 Grabrails

The requirements for the design and construction for grabrails are as follows:

- (a) Grabrails shall be not less than 30 mm and not more than 40 mm outside diameter, or they shall have sectional shape within the limits of 30 mm to 4 mm diameter.
- (b) Exposed edges and corners of grabrails shall have a radius of not less than 5 mm.
- (c) The fastening and the materials and construction of grabrails shall be able to withstand a force of 1100 N applied at any position and in any direction, without showing any visible signs of deformation or loosening of the fastenings.
- (d) Unless otherwise specified, the clearance between a grabrail and the adjacent wall surface or other obstruction shall be not less than 50 mm and not more than 60 mm. This clearance shall extend above the top of the grabrail by not less than 600 mm.
- (e) Grabrails shall be fixed so that there is no obstruction to the passage of the hand along the top 270° of the rail.
- (f) Grabrails shall not rotate in their fittings.

11 Controls

11.1 Door handles and hardware

11.1.2 Location

The requirements for the location for opening and locking controls for doors and gates, except in early childhood centres and swimming pool barriers, where their location shall be as required by the relevant statutory authority, are as follows:

- (a) Controls that need to be grasped or turned shall be not less than 900 mm and not more than 1100 mm above the plane of the finished floor.
- (b) Controls that only need to be pushed, such as panic bars on egress routes, shall be not less than 900 mm, and not more than 1200 mm above the plane of the finished floor.
- (c) Controls that only need to be touched shall be not less than 900 mm, and not more than 1250 mm above the plane of the finished floor, and not less than 500 mm from an internal corner except as noted in AS 1735.12.
- (d) Handles on sliding doors shall be not less than 60 mm from the doorjamb lining (see Figure 11 (b)).
- (e) Manual controls to power-operated doors shall be positioned above a level surface not closer than 1000 mm from the arc of a hinged door or clear of a sliding door in the open position, and the door shall remain open for a sufficient period to enable a person with impaired mobility to pass safely through the doorway.

11.2 Switches and general purpose outlets (power points)

All switches, other than general purpose outlets, shall be horizontally aligned with door handles and other controls not less than 900 mm, not more than 1100 mm above the plane of the finished floor, and not less than 500 mm from internal corners (see figure 31).

NOTES:

1 The preferred height of all switches and GPOs is 1000 mm.

2 Rocker action, toggle or push pad switches with a recommended width of 35 mm are preferred. For people with severe finger or hand disabilities, these allow convenient operation by arm or elbow.

14 SIGNS INDICATING ACCESS FOR PEOPLE WITH DISABILITIES

14.1. Use of international symbol

Where the international symbol of access is used, it shall comply with the requirements of this Clause (14).

14.2 International symbol

The requirements for the international symbol of access are as follows:

- (a) The symbol of access shall consist of two elements, a stylized figure in a wheelchair and a plain square background.
- (b) The proportional layout of the symbol of access shall be in accordance with Figure 32.
- (c) The colour of the figure shall be white on a blue background, in accordance with Figure 33. The blue shall be B21, Ultramarine of AS 2700, or similar.
- (d) For signs identifying a facility, the figure shall face to the right.
- (e) For signs indicating the direction to a facility, the figure shall face the direction of the facility.

NOTE: The sign may be used either with or without the directional arrow shown in Figure 35.

14.5 Signs

14.5.1 Location of signs

Signs, including symbols, numbering and lettering shall be located as follows:

- (a) Where they are clearly visible to people in both a seated and standing position.

NOTES:

1 Signs should be placed within a zone at a height not less than 1200 mm and not more than 1600 mm above the plane of the finished floor. Where space in this zone is not available, the zone for placement of signs may be extended downward to not less than 1000 mm from the plane of the finished floor. This height assists people to read from either a seated or a standing position, and assists people with low vision to read the information on the sign.

2 Where a sign can be temporarily obscured, e.g. in a crowd, the sign should be placed at a height not less than 2000 mm above the plane of the finished floor.

- (b) At sites where directional decisions are made, to enable the appropriate decisions to be made before a change of direction occurs.

- (c) Where the surface of the wall surrounding the sign provides sufficient contrast to the sign. At locations with insufficient contrast (e.g. patterned wallpapers), the background to the sign shall be increased in size.

NOTES:

1 The message that the sign carries should be unambiguous.

2 Floor plans or maps should provide information in tactile and Braille formats to be accessible to people who are blind or vision impaired.

3 Recorded auditory instruction should be accessible to people who are blind or vision impaired.

AS 1428.2-1992, Design for access and mobility, Part 2: Enhanced and additional requirements – Buildings and facilities

6 Circulation spaces

6.1 Clear floor or ground space for a stationary wheelchair The minimum clear floor or ground space required to accommodate a single stationary wheelchair and occupant shall be 800 mm by 1300 mm (see Figure 1). The minimum clear floor or ground space for wheelchair may be positioned for forward or parallel approach to an object (see Figure 1). Clear floor or ground space for wheelchairs may

Appendix C | Australian Standards

be part of the knee space required under objects.

6.2 Circulation space for 180° wheelchair turn The space required for a wheelchair to make a 180° turn shall be not less than 2070 mm in the direction of travel and not less than 1540 mm wide.

NOTE: A space of 2270 mm in the direction of travel and 1740 mm wide is preferred.

6.3 Circulation space for 360° wheelchair turn The space required for a wheelchair to make a 360° turn shall be not less than 2250 mm by 2250 mm.

NOTE: A space of 2450 mm by 2450 mm is preferred.

10 Handrails and grabrails

10.2 Grabrails The design and construction of grabrails shall comply with AS 1428.1, and with the following:

(a) The clearance between the grabrail and the adjacent wall surface shall be as specified in the appropriate Clauses of this Standard.

(b) Grabrails shall not rotate within their fittings.

NOTE: Grabrails installed in wet areas or outdoors should be slip-resistant when wet.

11 Doorways and doors

11.4 Call buttons Call buttons at entrances shall be located not less than 900 mm and not more than 1100 mm above the plane of the finished floor and not less than 500 mm from an internal corner.

NOTE: Call buttons should have an integral, continuously operating light.

17 Signs

17.3 Illumination of signs Illumination of signs shall be provided in accordance with Clause 19 for general displays. Lighting shall be placed so that unwanted reflections shall not occur on the sign. The luminance factor of the surface of numbers, letters or symbols shall be not less than 0.3 (30 percent) different from their background.

17.4 Location of signs Signs including symbols, numbering and lettering shall be located as follows:

(a) Where they are clearly visible to people in both a seated and standing position (see Clause 25).

NOTES:

1 Signs should be placed within a zone at a height not less than 1400 mm and not more than 1600 mm above the plane of the finished floor. Where space in this zone is used up, the zone for placement of signs may be extended downward to not less than 1000 mm from the plane of the finished floor. This height assists people to read from either a seated or a standing position, and also assists people with low vision to read the information on the sign. Letters and symbols in relief assist people with severe visual disabilities.

2 Where a sign can be temporarily obscured, e.g. in a crowd, the sign should be placed at a height of not less than 2000 mm above the plane of the finished floor.

(b) At changes of direction.

(c) At sites where directional decisions are made, to enable the appropriate decisions to be made before a change of direction occurs.

(d) Where the surface of the wall surrounding the sign provides sufficient contrast to the sign. If this surface provides insufficient contrast (e.g. patterned wallpapers), the background to the sign shall be increased in size.

NOTES:

1 The message that the sign carries should be unambiguous.

2 Tactile floor plans or maps and prerecorded auditory instructions at the main entrance and at other useful locations can be of assistance to people with visual impairment.

19 Lighting

19.1 Illumination levels Illumination levels shall be uniform and comply with the requirements for maintenance illumination set out in AS 1680.2.

NOTES:

1 The following minimum levels of maintenance illumination are recommended:

Entrances	
Passageways and walkways	150 lx
Stairs	150 lx
Ramps	150 lx
Lifts	See AS 1735.12
Toilet and locker rooms	200 lx
Counter tops	250 lx
General displays	200-300 lx
Telephones	200 lx

2 Many people require better artificial lighting than is normally provided. This applies particularly to older people and to all people with impaired sight.

3 For people with impaired hearing, a level of illuminations of not less than 150 lx, without glare, is needed to allow for lip reading.

21 Hearing augmentation – listening systems

21.1 General Where a sound amplification system is provided, a listening system to aid hearing-impaired people shall be installed or made available and shall cover at least 10 percent of the total area of the enclosed space. A sign indicating that an assistive hearing device is installed or is available shall be provided in accordance with Clauses 16 and 17 at the main door or doors to the enclosed space. Where the listening system does not cover the total area of the enclosed space, the boundaries of the area

Appendix C | Australian Standards

served shall be designated by such signs.

NOTE: It is recommended that 10 percent of each classification of seating within an auditorium be provided with a listening system.

22 Reach ranges

22.1 Forward reach – wheelchair users If the clear floor space allows only forward approach to an object by a person in a wheelchair, objects shall be in the reach range shown in Figure 20(a) [height: 380 mm – 1120 mm]. If the high forward reach is over an obstruction, objects shall be within the reach range shown in Figure 20(b) [depth: 550 mm].

22.2 Side reach – wheelchair users If the clear floor space allows parallel approach to an object by a person in a wheelchair, objects shall be in the reach range shown in Figure 21(a) [height: 230 mm – 1350 mm]. If the side reach is over an obstruction, objects shall be within the reach range shown in Figure 21(b) [depth: 600 mm].

22.4 Zone of common reach The zone for reach to objects which will be suitable for both ambulant people with disabilities and wheelchair users is shown in Figure 23 [height: 700 mm – 1200 mm, depth: 300 mm – 400 mm].

NOTE: The zone of common reach includes those dimensions for shelves, fittings, kitchen and laundry equipment, and items such as vending machines and street furniture, that permit ease of reach for both people who are standing and people who are sitting. The zone is obtained by using the maximum reach sideways to a shelf for people sitting in a wheelchair and the lowest reach for people who are standing, and may have stiff hips and knees or balance problems.

The intention is that all critical controls, areas of operation and storage of equipment commonly used by most members of the community and people in a household will be placed within this zone of common reach.

23 Controls

23.2 Operation Controls and operating mechanisms shall be operable with one hand and shall not require tight grasping, pinching, or twisting of the wrist.

24 Furniture and fitments

24.1 Tables, counters and worktops

24.1.3 Width of seating spaces In order to provide a wheelchair seating space, the minimum clearance width between the legs or other fixtures beneath a table, counter or worktop on at least one accessible face of the unit shall be 800 mm.

24.1.4 Knee and foot clearance A minimum clearance beneath the table, counter or worktop at wheelchair seating spaces shall be maintained as shown in Figure 25 [640 mm – 650 mm at front of top, 280 mm – 290 mm near the end of top].

NOTE: Pedestal tables and tables with splayed legs are not recommended. Tables with corner legs are preferred.

25 Viewing ranges The ultimate height zone for comfortable common viewing is shown in Figure 30 [overlap standing and wheelchair from 1830 mm depth: 1227 mm – 1709 mm].

NOTE: This height zones is computed from the averaged eye height of tall males standing and short females standing, and the average height of persons seated in wheelchairs.

27 Street furniture

27.1 General Street furniture, which includes objects such as seats, tables, drinking fountains, planter boxes, rubbish bins and the like, shall comply with the following:

(a) Objects shall not protrude into an accessible path of travel. Seats shall be a minimum of 500 mm away from the path of travel.

(b) Objects shall be of a colour which provides a contrast with their background and have a luminance factor of not less than 0.3 (30 percent).

NOTE: In pedestrian malls and similar places, all street furniture should be positioned on one side only of the accessible path of travel (see Figure 31)).

28 Gateways and checkouts

28.3 Ticket or coin feed height The ticket or coin feed points shall be at a height of 800 mm to 900 mm from the finished floor. Any controls needed to operate these machines shall have tactile applications for vision-impaired users.

NOTE: The ticket or coin feed point placed on the top surface of the unit will provide better access for people with disabilities of the hands or upper limbs.

29 Vending machines

29.1 Height The height of the operative components shall be between 500 mm and 1200 mm above the trafficable surface.

NOTE: Where practicable, knee and foot clearance should be provided beneath the machine.

29.2 Controls Controls shall comply with the following:

(a) The required operating force for any control shall not exceed 19.5 N.

NOTE: Where possible, knobs should not be used. Where they are used, they should be of sufficient size and texture to allow grip by fingers or palms.

(b) Controls shall be clearly identifiable by touch and sight.

NOTE: Preferred controls include D-handles or pulls, levers and sensors.

(c) Controls shall have a tactile surface to facilitate use by vision-impaired persons.

29.4 Circulation space Sufficient circulation space to allow a 360 degrees wheelchair turn in accordance with Clause 6.3 shall be provided in front of the vending machine, as follows:

- (a) Any crossfall shall be no greater than 1 in 40.
- (b) The ground or floor surface of the circulation space shall have slip-resistant finish.

NOTE: The circulation space should be under cover.

AS/NZS 1428.4:2002, Design for access and mobility, Part 4: Tactile indicators

Section 2 Criteria and application for tactile indicators

2.1. General

The following applies to a tactile indicator under all lighting and weather conditions:

- (a) It shall be detectable by tactile means.
- (b) It shall have luminance-contrast to the base surface as follows:
 - (i) Where the dots and bars are of the same colour as the underlying surface of not less than 30% across its entire area
 - (ii) Where discrete dots and bars of not less 45%
 - (iii) Where discrete dots and bars are constructed using two colours or materials, the raised surface shall have a section that has 60% luminance contrast for a diameter of 24 mm to 25 mm tested as above.

NOTE: Marked colour contrast may also generally be of benefit.

Luminance contrast shall be tested in accordance with Appendix F.

- (c) It shall, at any time after installation, where application ceases to meet any of the criteria, be deemed to no longer comply and shall be replaced or rectified (see Notes 2 and 3).

NOTES:

- 1 Many people with vision impairment require this contrast to visually detect the indicator.
- 2 Some dyes used in manufacturing TGSIs tend to fade as a result of UV degradation.
- 3 If surrounding pavement or floor is changed, the luminance-contrast criteria should be maintained.
- 4 Correct application will minimise adverse effects on all users of tactile indicators.
- 5 Soiling of all pedestrian surface materials is inevitable. This may cause some temporary colour differences in integrated TGSI units between the raised surface of dots or the bars and the underlying surface. It is expected that this could be rectified by an appropriate maintenance regime.

AS/NZS 60950.1:2003, Information technology equipment - Safety, Part 1: General requirements (IEC 60950-1:2001, MOD)

1 General

1.7 Markings and instructions

1.7.1 Power rating

Equipment shall be provided with a power rating marking, the purpose of which is to specify a supply of correct voltage and frequency, and of adequate current-carrying capacity.

If a unit is not provided with a means for direct connection to an AC MAINS SUPPLY or a DC MAINS SUPPLY, it need not be marked with any electrical rating, such as its RATED VOLTAGE, RATED CURRENT or RATED FREQUENCY.

For equipment intended to be installed by an OPERATOR, the marking shall be readily visible in an OPERATOR ACCESS AREA, including any area that is directly visible only after an OPERATOR has opened a door or cover. If a manual voltage selector is not OPERATOR-accessible, the marking shall indicate the RATED VOLTAGE for which the equipment is set during manufacture; a temporary marker is permitted for this purpose. Marking is permitted on any outer surface of the equipment, except the bottom of equipment having a mass exceeding 18 kg. Additionally, on STATIONARY EQUIPMENT, the marking shall be visible marker on the equipment. It is permitted to use a temporary marker for this purpose.

The marking shall include the following:

- RATED VOLTAGE(S) or RATED VOLTAGE RANGE(S), in volts:
 - the voltage range shall have a hyphen (-) between the minimum and maximum RATED VOLTAGES. When multiple RATED VOLTAGES or RATED VOLTAGE RANGES are given, they shall be separated by a solidus (/).

NOTE 1 Some examples of RATED VOLTAGE markings are:

- RATED VOLTAGE RANGE: 220-240 V. This means that the equipment is designed to be connected to an AC MAINS SUPPLY having any voltage between 220 V and 240 V.
- Multiple RATED VOLTAGE: 120/230/240 V. This means that the equipment is designed to be connected to an AC MAINS SUPPLY having a voltage of 120 V or 230 V or 240 V, usually after internal adjustment.
- if equipment is to be connected to both of the line conductors and to the neutral conductor of a single-phase, 3-wire power distribution system, the marking shall give the line-to-neutral voltage and the line-to-line voltage, separated by a solidus (/), with the added notation "Three

Appendix C | Australian Standards

wires plus protective earth", "3W + PE" or equivalent.

NOTE 2 Some examples of the above system rating markings are:

120/240 V; 3 wire + PE


120/240 V; 3W + , (60417-1-IEC-5019)

100/200 V; 2W + N + PE

- symbol for nature of supply, for d.c. only;
- RATED FREQUENCY or RATED FREQUENCY RANGE, in hertz, unless the equipment is designed for d.c. only;
- RATED CURRENT, in milliamperes or amperes;
- for equipment with multiple RATED VOLTAGES, the corresponding RATED CURRENTS shall be marked such that the different current ratings are separated by a solidus (/) and the relation between RATED VOLTAGE and associated RATED CURRENT appears distinctly;
- equipment with a RATED VOLTAGE RANGE shall be marked with either the maximum RATED CURRENT or with the current range;
- the marking for RATED CURRENT of a group of units having a single supply connection shall be placed on the unit which is directly connected to an AC MAINS SUPPLY or a DC MAINS SUPPLY. The RATED CURRENT marked on that unit shall be the total maximum current to all units in the group that can be supplied simultaneously through the unit and that can be operated simultaneously.

NOTE 3 Some examples of RATED CURRENT markings are:

- for equipment with multiple RATED VOLTAGES;

120/240 V; 2,4/1,2 A  for equipment with a RATED VOLTAGE RANGE;


100-240 V; 2,8 A

100-240 V; 2,8-1,4 A

100-120 V; 2,8 A

200-240 V; 1,4 A

It is recognized that in some regions it is customary to use a point (.) as a decimal marker instead of a comma.

- manufacturer's name or trade-mark or identification mark;
- manufacturer's model or type reference;
- symbol  (60417-1-IEC-5172), for CLASS II EQUIPMENT only.

Additional markings are permitted, provided that they do not give rise to misunderstanding.

Where symbols are used, they shall conform to ISO 7000 or IEC 60417-1 where appropriate symbols exist.

1.7.2 Safety instructions

Sufficient information shall be provided to the USER concerning any condition necessary to ensure that, when used as prescribed by the manufacturer, the equipment is unlikely to present a hazard within the meaning of this standard.

If it is necessary to take special precautions to avoid the introduction of hazards when operating, installing, servicing, transporting or storing equipment, the necessary instructions shall be made available.

NOTE 1 Special precautions may be necessary, for example, for connection of the equipment to the supply and for the interconnection of separate units, if any.

NOTE 2 Where appropriate, installation instructions should include reference to national wiring rules.

NOTE 3 Servicing instructions are normally made available only to SERVICE PERSONS.

NOTE 4 In Finland, Norway and Sweden, CLASS I PLUGGABLE EQUIPMENT TYPE A intended for connection to other equipment or a network, must, if safety relies on connection to protective earth or if surge suppressors are connected between the network terminals and accessible parts, have a marking stating that the equipment must be connected to an earthed mains socket-outlet.

The operating instructions, and the installation instructions for PLUGGABLE EQUIPMENT intended for USER installation, shall be made available to the USER.

Where the disconnect device is not incorporated in the equipment (see 3.4.3) or where the plug on the power supply cord is intended to serve as the disconnect device, the installation instructions shall state that:

- for PERMANENTLY CONNECTED EQUIPMENT, a readily accessible disconnect device shall be incorporated in the building installation wiring;
- for PLUGGABLE EQUIPMENT, the socket-outlet shall be installed near the equipment and shall be easily accessible.

For equipment that may produce ozone, the installation and operating instructions shall refer to the need to take precautions to ensure that the concentration of ozone is limited to a safe value.

Appendix C | Australian Standards

NOTE 5 The present recommended long term exposure limit for ozone is 0,1 ppm (0,2 mg/m³) calculated as an 8 h time-weighted average concentration. It should be noted that ozone is heavier than air.

1.7.5 Power outlets on the equipment

If any standard power supply outlet in the equipment is accessible to the OPERATOR, a marking shall be placed in the vicinity of the outlet to show the maximum load that is permitted to be connected to it.

Socket-outlets conforming to IEC 60083 are examples of standard power supply outlets.

1.7.8. Controls and indicators

1.7.8.1. Identification, location and marking

Unless it is obviously unnecessary, indicators, switches and other controls affecting safety shall be identified or located so as to indicate clearly which function they control.

Markings and indications for switches and other controls shall be located either:


- on or adjacent to the switch or control, or
- elsewhere, provided that it is obvious to which switch or control the marking applies

Indications used for this purpose shall, wherever practicable, be comprehensible without a knowledge of languages, national standards, etc.


1.7.8.2 Colours

Where safety is involved, colours of controls and indicators shall comply with IEC 60073. Where colours are used for functional controls or indicators, any colour, including red, is permitted provided that it is clear that safety is not involved.

1.7.8.3 Symbols

Where symbols are used on or near controls (for example, switches and push buttons) to indicate "ON" and "OFF" conditions, they shall be the line | for "ON" and circle O for "OFF" (60417-1-IEC-5007 and 60417-1-IEC-5008). For push-push type switches the symbol  shall be used (60417-1-IEC-5010).

It is permitted to use the symbols O and | to indicate the "OFF" and "ON" positions of any primary or secondary power switches, including isolating switches.

A "STAND-BY" condition shall be indicated by the symbol  (60417-1-IEC-5009)

1.7.12 Language

Instructions and equipment marking related to safety shall be in a language which is acceptable in the country in which the equipment is to be installed.

NOTE 1 Documentation intended for use only by SERVICE PERSONS is permitted to be in the English language only.

NOTE 2 In Germany, safety related information also for SERVICE PERSONS has to be in the German language.

1.7.13 Durability

Any marking required by this standard shall be durable and legible. In considering the durability of the marking, the effect of normal use shall be taken into account.

Compliance is checked by inspection and by rubbing the marking by hand for 15 s with a piece of cloth soaked with water and again for 15 s with a piece of cloth soaked with petroleum spirit. After this test, the marking shall be legible; it shall not be possible to remove marking plates easily and they shall show no curling.


The petroleum spirit to be used for the test is aliphatic solvent hexane having a maximum aromatic content of 0,1% by volume, a kauributenol value of 29, an initial boiling point of approximately 65°C, a dry point of approximately 69°C and a mass per unit volume of approximately 0,7 kg/l.

1.7.14 Removable parts

Marking required by this standard shall not be placed on removable parts which can be replaced in such a way that the marking would become misleading.

1.7.16 Operator access with a tool

If a TOOL is necessary to gain access to an OPERATOR ACCESS AREA, either all other compartments within that area containing a hazard shall be inaccessible to the OPERATOR by the use of the same TOOL, or such compartments shall be marked to discourage OPERATOR access.

An acceptable marking for an electric shock hazard is  (ISO 3864, No. 5036).

4 Physical requirements

4.3.2 Handles and manual controls

Handles, knobs, grips, levers and the like shall be reliably fixed so that they will not work loose in normal use, if this might result in hazard. Sealing compounds and the like, other than self-hardening resins, shall not be used to prevent loosening.

If handles, knobs and the like are used to indicate the position of switches or similar components, it shall not be possible to fix them in a wrong position if this might result in a hazard.

Compliance is checked by inspection, by manual test and by trying to remove the handle, knob, grip or lever by applying for 1 min an axial force as follows.

If the shape of these parts is such that an axial pull is unlikely to be applied in normal use, the force is:

- 15 N for the operating means of electrical components; and
- 20 N in other cases.

If the shape is such that an axial pull is likely to be applied, the force is:

- 30 N for the operating means of electrical components; and
- 50 N in other cases.

4.3.4 Securing of parts

Screws, nuts, washers, springs or similar parts shall be secured so as to withstand mechanical stresses occurring in normal use if loosening would create a hazard, or if CLEARANCES or CREEPAGE DISTANCES over SUPPLEMENTARY INSULATION or REINFORCED INSULATION would be reduced to less than the values specified in 2.10.

NOTE 1 Requirements regarding fixing of conductors are in 3.1.9.

Compliance is checked by inspection, by measurements and by manual test.

For the purpose of assessing compliance:

- it is assumed that two independent fixings will not become loose at the same time; and
- it is assumed that parts fixed by means of screws or nuts provided with self-locking washers or other means of locking are not liable to become loose.

NOTE 2 Spring washers and the like can provide satisfactory locking.

4.3.5 Connection of plugs and sockets

Within a manufacturer's unit or system, plugs and sockets likely to be used by the OPERATOR or by a SERVICE PERSON shall not be employed in a manner likely to create a hazard due to misconnection. In particular, connectors complying with IEC 60083 or IEC 60320 shall not be used for SELV CIRCUITS or TNV CIRCUITS. Keying, location or, in the case of connectors accessible only to a SERVICE PERSON, clear markings are permitted to meet the requirement.

Compliance is checked by inspection.

4.3.13.5 Lasers (including LEDs)

Except as permitted below, equipment shall be classified and labelled according to IEC 60825-1 and IEC 60825-2, as applicable, or AS/NZS 2211.1.

Equipment which is inherently a Class I laser product, that is the equipment contains no laser or light emitting diode (LED) of a higher class number, is not required to have a laser warning label or other laser statement (see 1.1 of IEC 60825-1).

The data for laser or LED components shall confirm that these components comply with the Accessibility Emission Limit for Class I when measured according to IEC 60825-1, for the above exception to apply. The data may be obtained from the component manufacturer (see 1.4.15) and can relate to the component alone or to the component manufacturer application in the equipment. The lasers or LEDs shall produce radiation only in the wavelength of 180 nm to 1 mm.

NOTE Some examples of applications of LEDs which will normally comply are those used as:

- indicating lights;
- infra-red devices such as are used in home entertainment devices;
- infra-red devices for data transmission such as are used between computers and computer peripherals;
- optocouplers; and
- other similar low power devices.

Compliance is checked by inspection, by evaluating of the data provided by the manufacturer and, if necessary, by testing according to IEC 60825-1.

Appendix D | observation

NOTE: after the first observation no exact times and numbers are measured, as this is not considered to add much valuable information to the research.

1. Stockland Observation

Piccadilly centre – 133 Castlereagh Street, Sydney
Tuesday, March 3, 2009 – 13.17h – 16.17h

The Compass kiosk (way finder) is located in a small 2 level shopping centre, located in the CBD of Sydney. The centre is home to over 39 stores specialising in fashion, fine jewellery, gifts, health and beauty. There is a food court located on the first level.

Note: if people are using the kiosk and a security employee is near, he asks them if he can help them. Most people then just ask their questions in person, instead of using the kiosk.

In the three hours, very many people did pass the kiosk, but very few used the kiosk or seemed to notice the kiosk. In the first hour, during lunch time, 3 men, 4 women, and 2 couples seriously used the kiosk. One of the couples did not understand the tough touch screen, the other ones did understand (sometimes after a little period of time). There were 2 non serious attempts: 1 woman just intensively looked at the kiosk, and 1 man was just pushing the options for a few seconds while passing by the kiosk. Just before the observation started 1 woman and 1 couple did use the kiosk as well. Including all, 15 persons used the kiosk and 1 person only looked at it.

After the first hour, a lot less people used the kiosk, a total of 12 persons in two hours. I have interviewed those people who seriously used the kiosk. The other ones did seem to know where they were going beforehand or were in a hurry.

Most persons used the kiosk to find a certain store or to see whether the store they were looking for is in the centre. One person used the kiosk to see whether the route to his store (Precious Metal Exchange) was displayed correctly, as he had heard people got directed elsewhere. After testing he noticed that people sometimes get the correct directions and sometimes get the wrong directions. Because all of the questioned people were searching for their destination, they noticed the kiosk straight away. The persons who did a non serious attempt using the kiosk can here be distinguished, because they did not use the kiosk straight after they entered the shopping centre.

All of the users seemed to instantly know how to use the kiosk and touch screen, although quite a few people had troubles with the force they had to use to activate the touch screen. This made some people, mainly elderly persons, not understand how to use the kiosk, as they did not see any result of their actions. In addition, people approach the kiosk from both sides. There are persons who see the back of the kiosk, but do not understand the actual directory touch screen is on the other side. They completely miss out on the kiosk's function. One group of users expressed the kiosk not being clear at all, however this had to do with the software. This group was looking for the food court entered in 'food', which did not lead to any results. They should have typed in a store name or should have used the programmed buttons displaying 'eat'. This group had help of the security employee to find their way to the food court. Overall, if the kiosk was not there, all questioned persons would ask someone for directions, use an old fashioned directory listing (if provided) or would just no further enter this shopping centre at all.

The larger amount of the users found the kiosk comfortable in use and thought the design was nice. The screen was of a good size, it should not be any smaller. The use of colours made the design come across as clean. Here must be noted that most of the users would be happy with the design anyway, as long as they would have found what they were looking for. The mentioned recommendations:

- voice activation
- audio for visually impaired (e.g. a voice saying 'turn left')
- use of separate keyboard (tough touch typing is more difficult)
- use of international signs and buttons (e.g. fork and knife for food)
- make the survey (part of software) less a priority (Q and A pops up a lot, is easily touched by accident)
- jazz it up to differentiate more
- use old fashioned directory listing, saves time and doesn't waste any space

Not only users, but also people passing by the kiosk and working in the shopping centre were asked to give their opinion on the kiosk design. The shopping centre employees did think the kiosk is too small

Appendix D | observation

and does not get noticed. Many people ask the store employees where they have to go, because they do not notice the directory sign or the kiosk at all. It is maybe too simple or could use more graphical design elements. The white background colour does not grab attention at all either, so a different colour might catch more views. From the people passing by, a lot responded that they don't need to use the kiosk in their experience. To them the kiosk does not matter at all. These persons already know where they are going and how to get there. Many less regular visitors and tourists find that the kiosk does not grab your attention at all. The colours are pretty, but maybe more contrast or brighter colours would make the kiosk more noticeable. Some people find the kiosk and the touch screen too small, old fashioned directory listing displayed bigger maps, which were better in their opinion. In addition, the sharp edges do not appeal to everyone. In general, the overall kiosk design shape is fine, but it would clearly not stop any of the questioned persons.



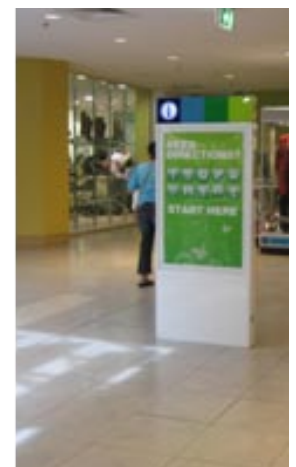
2. Stockland Observation

Baulkham Hills – 375-383 Windsor Road, Sydney
Monday, March 9, 2009

The Compass kiosk (way finder) is located in a shopping centre in the growing Hills District in Sydney's north-western suburbs. The centre is home to over 95 specialty retailers including a new food court, fresh food, banks and services. There are more than 840 car parks available. This kiosk differs from the Piccadilly Centre kiosk, because this kiosk provides a handset for further assistance.

Again, many people pass the kiosk; it is conveniently located directly across the escalators. The results from this observation are mainly the same as from the observation in Piccadilly centre. However it must be noted that because this shopping centre is much larger, the usage level is also higher. Only the different remarks and recommendations are mentioned here:

- Because of the location, much more people notice the kiosk, and therefore more people use the kiosk as well
- The phone gets used a lot, although many times people hang up, indicating people are just 'trying out' the handset
- This touch screen requires less force to be used, so no one suggested a separate keyboard
- None of the users had problems or difficulties with the software



Appendix D | observation

3. Chullora Market Place Observation

Chullora – 355-357 Waterloo Road, Sydney
Thursday, March 12, 2009

The VSI kiosk (membership software) is located in Chullora, which is essentially an industrial area with many factories and warehouses. It also houses the printing plants for Sydney newspapers and magazines. Chullora Market Place is a 1 level shopping centre that features a variety of stores, ranging from large retail outlets to independent small businesses. The centre features about 50 shops.

There is one kiosk located in the shopping centre. This particular kiosk is mainly used for its software and features a touch screen, card reader and printer. You have to be a member to receive a membership card. Each time you come to the centre you swipe your membership card to redeem your points. You can do this once in the morning and once in the evening. When you have swiped your card, the software is activated and you have to choose a 'lottery ticket'. You can instantly win a price with this ticket. In addition, the points will be added to your credit, with these points you can buy certain items. Each item has another value, so you are saving up points for gadgets. As you have chosen your lottery ticket, this ticket gets printed. If you did not win yet, the shopping centre provides a large barrel next to the kiosk. You put your ticket in this box and once every month the centre draws a winner from all tickets as well. Regarding the large amount of tickets in the barrel, this kiosk is much used. At busy times there might even be a waiting line!

However, you have to look for the kiosk. If you are a member, you will probably know where to find the kiosk. There is a barrel next to the kiosk and on the other side there's a closet displaying the prices you can win, so the kiosk itself is a little covered up. It is an advantage that the kiosk is located just in front of the main supermarket in the centre, so most people will pass it and will not have to change their route to use the kiosk.

The users find the kiosk easy to use and of course favour the software. Comments were about the dirt found on the kiosk; it looks like it does not get cleaned often. Furthermore, the touch screen is considered easy to use, but the calibration is a little off. There is a cable running from the back of the machine, which is considered a little dangerous. However, because most people will not get close to the back of the kiosk, users do not find this a problem.



4. Nokia Care Centre Observation

Parramatta, Suite 1, 144 Marsden Street, Sydney
Monday, March 9, 2009

Nokia describes itself as: "Nokia makes products that connect with people today, but they are driven by a passion for what people will need and want tomorrow. By not being satisfied with the way things are and constantly challenging ourselves, we will create the future. Our customers are never satisfied with the status quo and neither are we."

The Blade kiosk is located in a Nokia Care Centre. It is a helpdesk where people can go to with their questions about Nokia. When they enter the centre, they have to use the kiosk to print a ticket. The ticket states their number and the reason of their visit (e.g. warranty, repair). The numbers are called to a desk

Appendix D | observation

when an employee is ready to assist with the questions. The kiosk is located between the entrance door and the waiting area; you basically walk right into it.

There were actually none complaints about this kiosk. It is easy to use, it has the Nokia logo on it and it is clear to the customers that they have to use the kiosk. The users find the design nice, although they do not pay much attention to it. The ticket prints out fine, it is an easy location (below the touch screen) to collect the ticket. Users also find the printing time is fine.

Looking at the design, there were a few remarks. Because this kiosk has a more organic shape, there are more gaps in the construction. It is more difficult to make smooth translations from one surface to another. Also, bending the sheet metal leaves its marks, fortunately at the back of the kiosk. As the kiosk is positioned in front of a pillar, users will not notice this. The shape does stand out in the room, which is a nice feature.

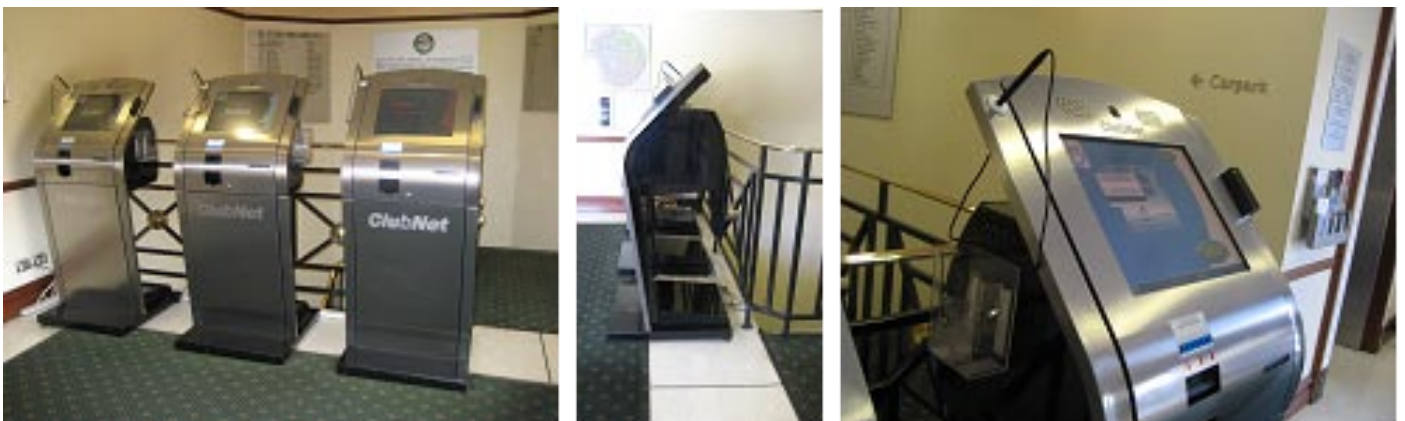


5. The Epping Club Observation

Epping, 45-47 Rawson Street, Sydney
Thursday, March 12, 2009

RSL (Returned and Serviced League) clubs are social communities, first formed by Ex-Servicemen from World War I to further their common interests and maintain mateship. The Epping Club provides a 5 star experience; there is food, entertainment and social interaction. "From the warm welcome when you walk through the front door to the social buzz in E Bar, the mouth watering sensations served in The Terrace Restaurant Bar & Grill and the latest equipment in Level One Fitness." You have to become a member to receive membership benefits.

In the entrance hall of the Epping Club are three VSI series kiosk installed. At the kiosk you swipe your driver's license as identification. There is also a touch screen stylus pen, so you can actually sign at the touch screen. There is payment functionality (card reader) and a receipt printer. There are always employees of the club around to help you with the use of this kiosk. Although the club looks really sophisticated, the kiosks do not look specifically out of place. Comments users gave were mainly about the technology, because most users are of elderly age. Because this particular kiosk functionality differs very much from the functionalities the outdoor kiosk will have and because the target group does not seem to be a like, the observation ended here.



Appendix D | observation

6. RedRoomDVD observation

Surry Hills – 433 Crown Street, Sydney
Tuesday, March 3, 2009

RedRoomDVD is an Australian company revolutionizing the DVD rental market. The founders had the belief that there just had to be a better way to rent DVDs. This became reality with their expanding network of interactive semi automated DVD rental stores. Compared to traditional video rental stores, their business model has greater customer appeal, is more cost efficient and has greater longevity.

There are 6 (Scythe) kiosks in the store and one large DVD vending machine. The kiosks have a touch screen, a card reader, and headphones. First you swipe your membership card or credit card at the kiosk. This means you have to be a member of the store, so all of your data and store credit is added to this card. At the screen you can select the movie you want to rent. You can browse the movie database by sorting the titles however you like. You can read reviews and watch and listen to previews of each movie. In addition, members can also view this content at home via the Internet. The contents are updated by the employees of the RedRoomDVD franchise store. Once you have selected the movie(s) you want to rent, by using the touch screen, you can retrieve them from the DVD dispenser by swiping your card again. The machine will read your card and dispense the movie(s) you have selected at the kiosk. With the same action you can return the DVDs too. At each kiosk you can also recharge your membership card. You swipe your credit card and the machine will recognise the belonging membership card. You can then add credit to your card membership card. The automated vending machine does also accept notes in order to recharge your card.

According to the RedRoomDVD employees, the kiosks fit their purpose and each kiosk is at least used once a day. On Friday and Saturday each kiosk is used 4-5 times during one shift. The decisions on design are made by the top management, so each franchise has the same kiosk designs. The kiosks are a huge improvement, because they save a lot of time and money. Fewer employees are required and the employees and customers do not have to search for DVD cases anymore. Searching via the kiosk is a lot easier and suits the customers' wishes better. Also, because you can order DVDs all day and night, more people are able to rent DVDs, as they can come to the store anytime. According to the employee it is also an advantage that the kiosks and dispenser provide the customers with more privacy. For all these reasons the rental fees are much lower than at other DVD rental stores, attracting more customers to RedRoomDVD. To the people in the neighbourhood the system is still relatively new and therefore exciting to use. If people do not understand how to use the kiosk the employees will explain how it works. After this explanation all people are able to use the software and rent DVDs. So far the store has not encountered persons who, though sometimes after an explanation, did not understand how to use the kiosk.

This franchise is established three months ago and there is very little experience with technical support. It happened once that the DVD vending machine accidentally shut down for a couple of hours, causing problems with renting and returning DVDs. In addition, it has only happened a few times that an individual PC in one of the kiosks had to be restarted. The employees can restart each kiosk computer from their central PC.



Appendix E | stakeholders

Who:

- 1 Designs the kiosk?
- 2 Supplies material for the kiosk?
- 3 Manufactures the kiosk?

- 4 Delivers packaging for the kiosk?
- 5 Transports/distributes the kiosk?

- 6 Installs/builds the kiosk?
- 7 Decides on the kiosk placement?
- 8 Provides the power supply for the kiosk?
- 9 Provides the network connections for the kiosk?
- 10 Decides on the 3rd party advertisement?

- 11 Maintains the kiosk?
- 12 Cleans the kiosk?
- 13 Provides software for the kiosk?
- 14 Updates the kiosk info?
- 15 Maintains the kiosk info?
- 16 Repairs the kiosk?
- 17 Maintains the 3rd party advertisement?

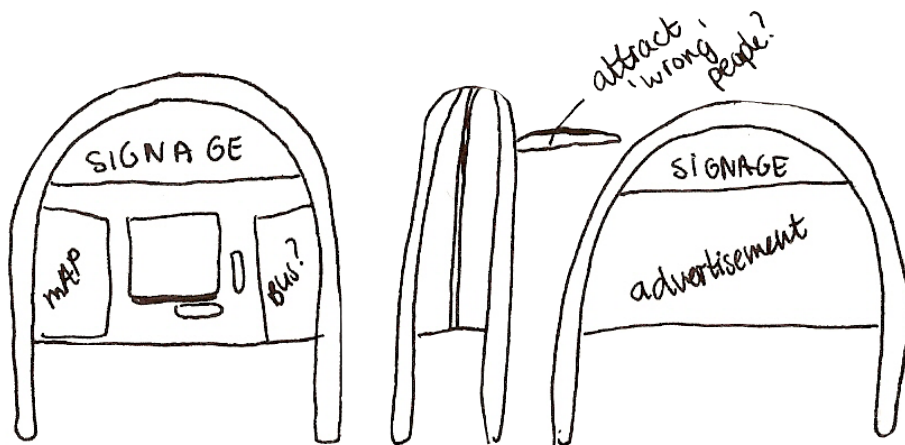
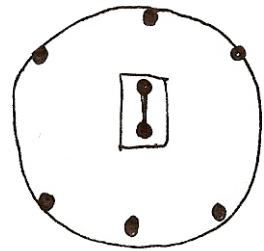
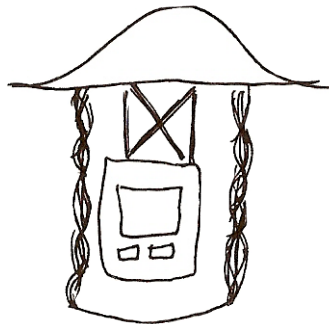
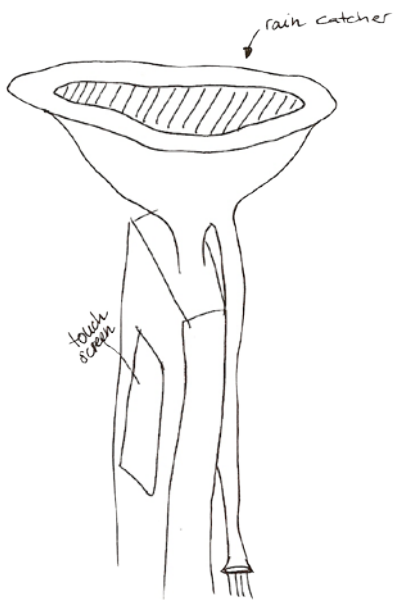
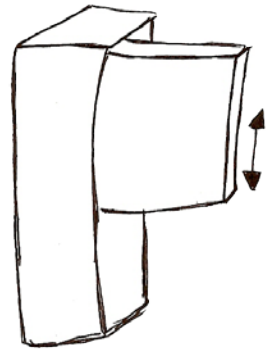
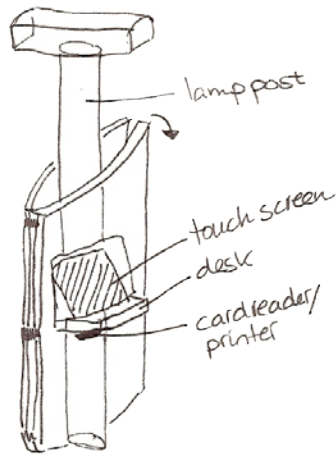
- 18 Who will use the kiosk?
- 19 Who will see the 3rd party advertisement?
- 20 Who will be in contact with the kiosk (no usage)?

- 21 Removes the kiosk?
- 22 Recycles the kiosk?

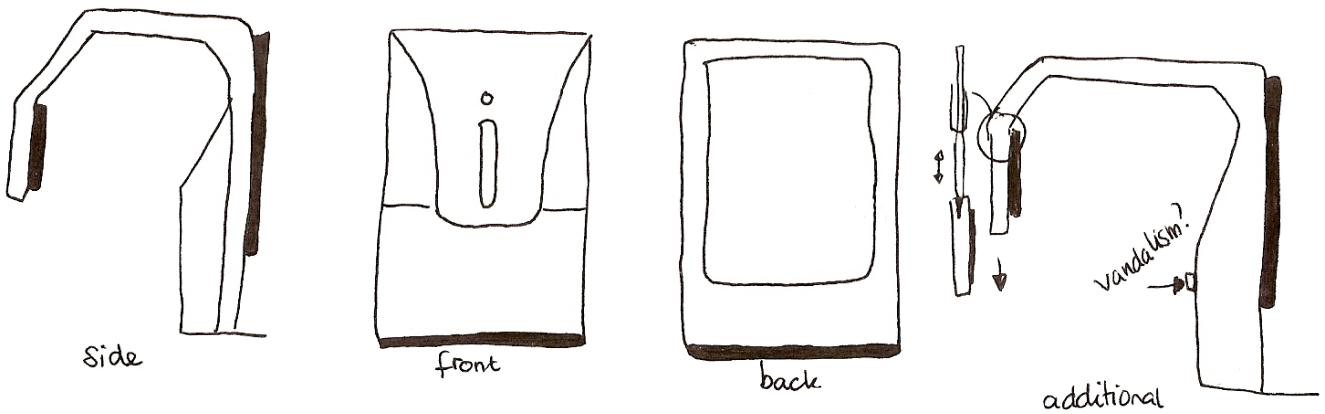
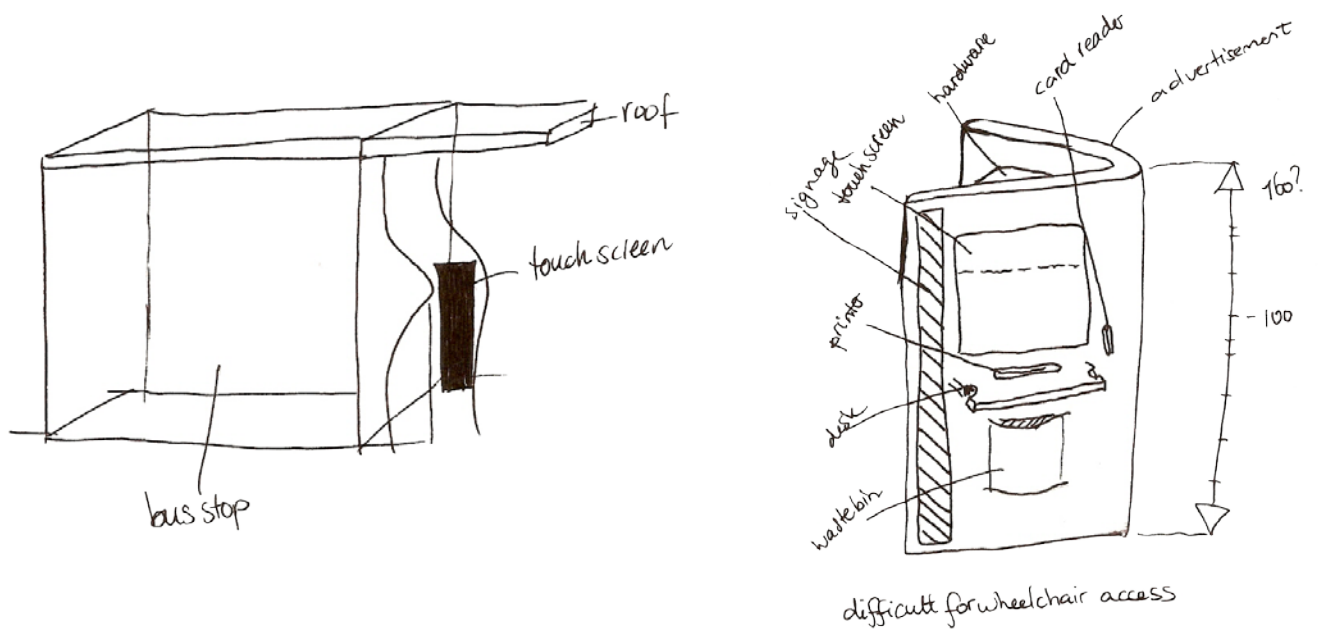
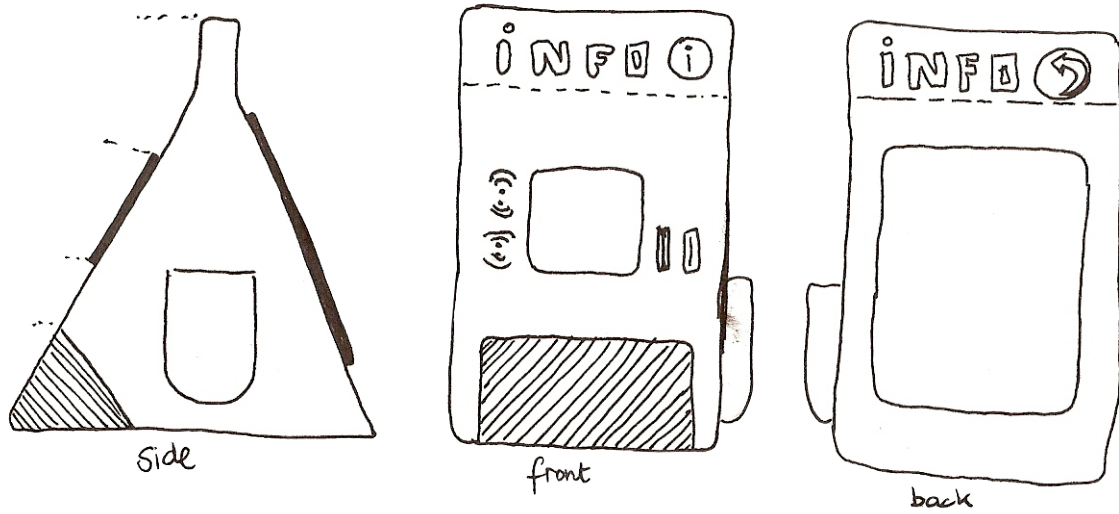
Stakeholder	Interests	Question nr.
Event/designer	Image, creating future proof design, satisfy client and target market, profit	1
Sales	Image, market share, profit	2
Suppliers	Profit	3
Manufacturer	Effective manufacturing, profit	4
Packaging	Best use of material, profit	5
Distributor	Effective way of transport, profit	6
Installer	Effective way to install, profit	7, 8
Local councils	Image, no obstruction, safety	8, 9, 10
3 rd party	Image, nice design, profit	11, 18
Service personnel	Effective maintenance, profit, safety	12, 17
Cleaning personnel	Effective cleaning, profit, safety	13
Clients	Image, satisfy target market, ease of maintenance, profit	8, 14, 15, 16
Target group/users	Effective use, nice design, image, safety	19
All people/non-target group	No obstruction, nice design, safety	20
Neighbours/non-target group	No obstruction, nice design, safety, environmental friendly	21
Removal services	Effective removal, profit	22
Recycler	Effective recycling, profit	23

* In this case it is still quite open, but Envent will execute or hire contractors for questions: 1, 2, 7, 8, 12, 13, 14, 15, 16, 17, 18, 22, 23.

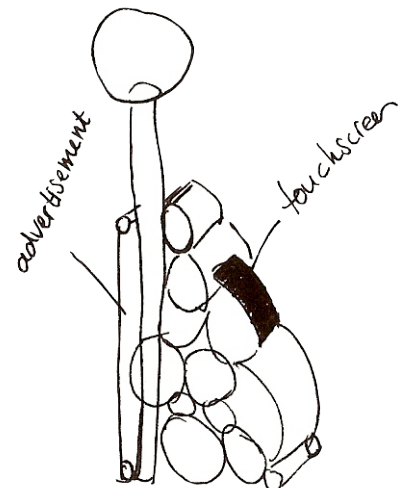
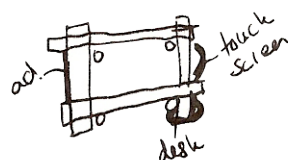
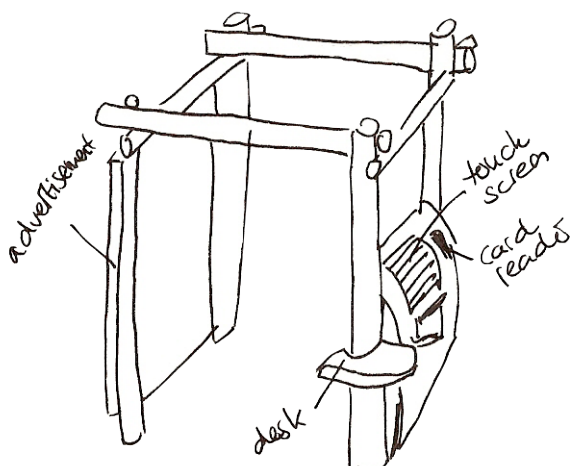
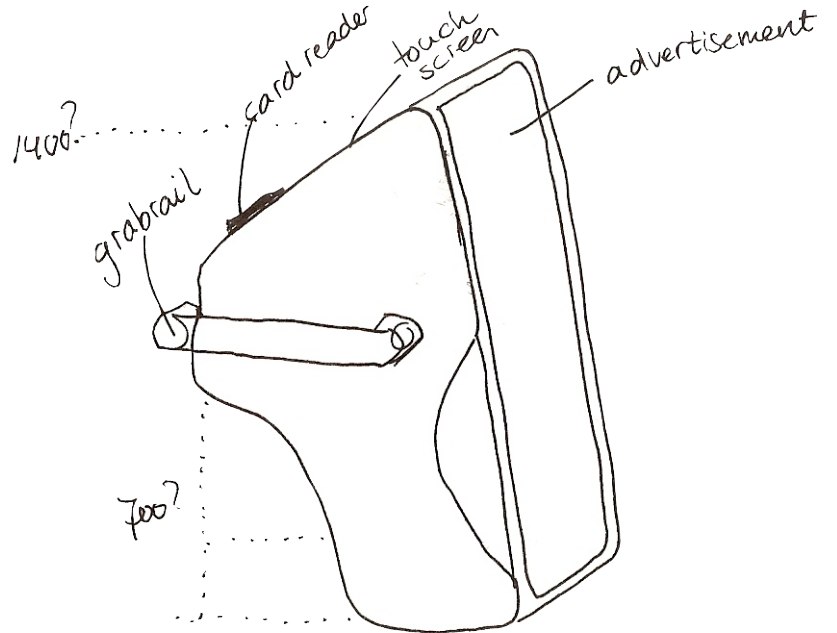
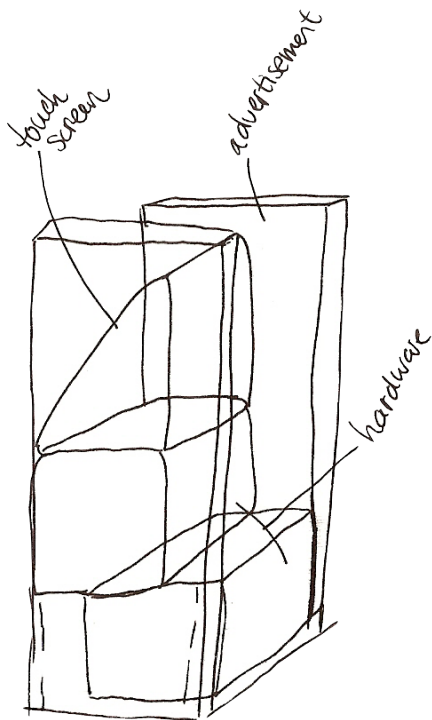
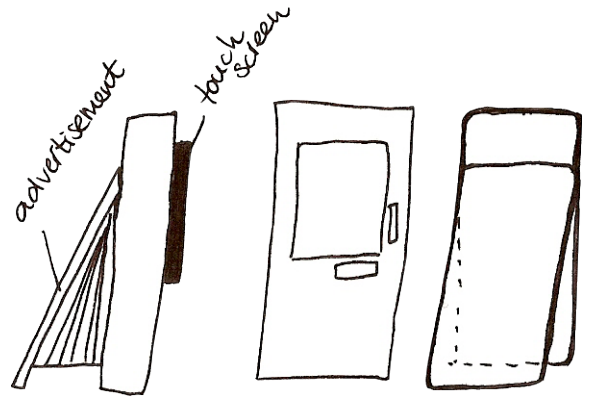
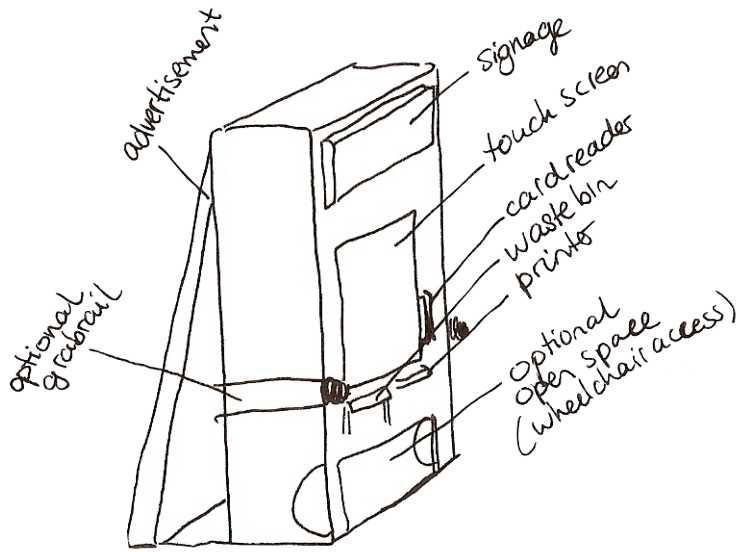
Appendix F | all ideas



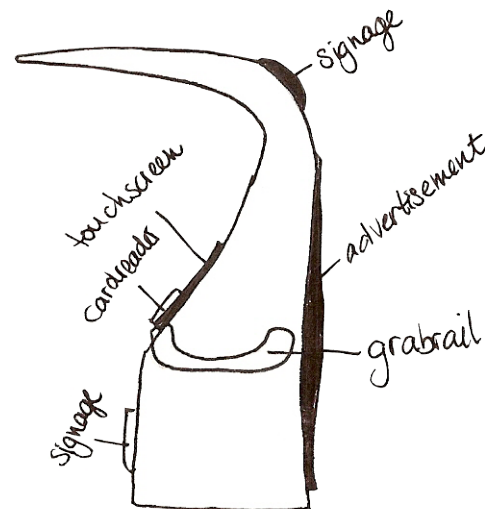
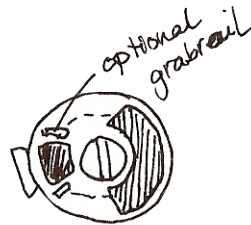
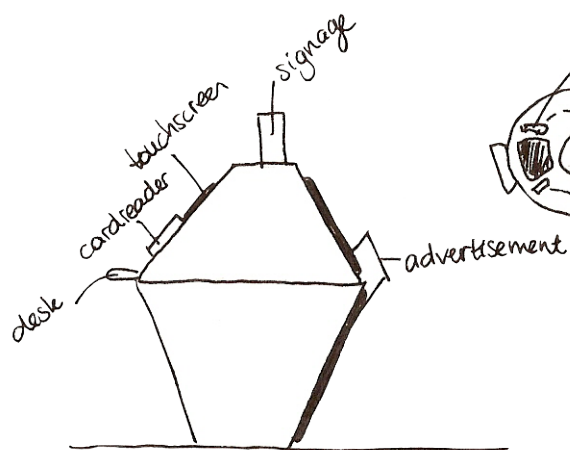
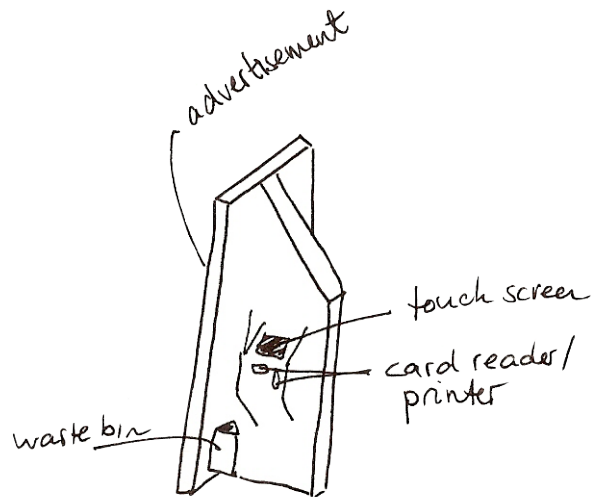
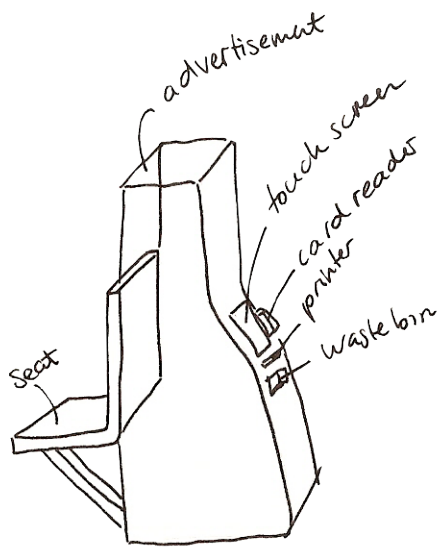
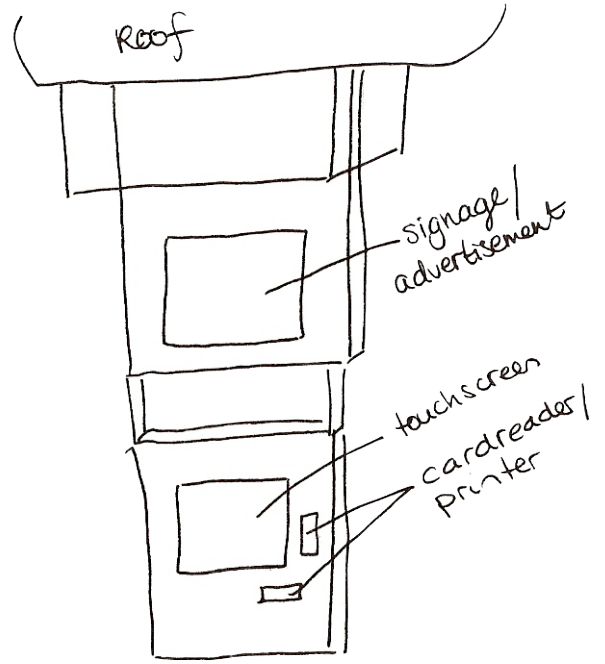
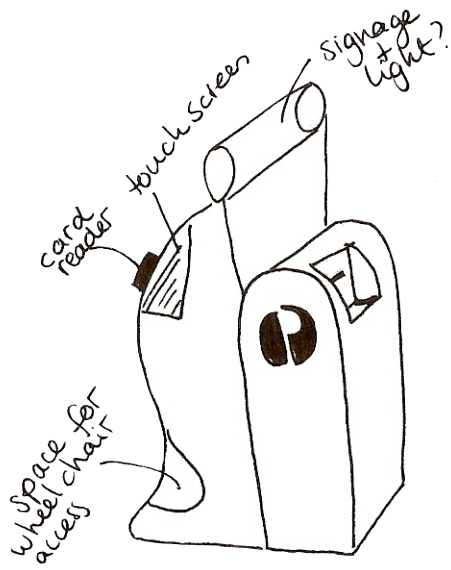
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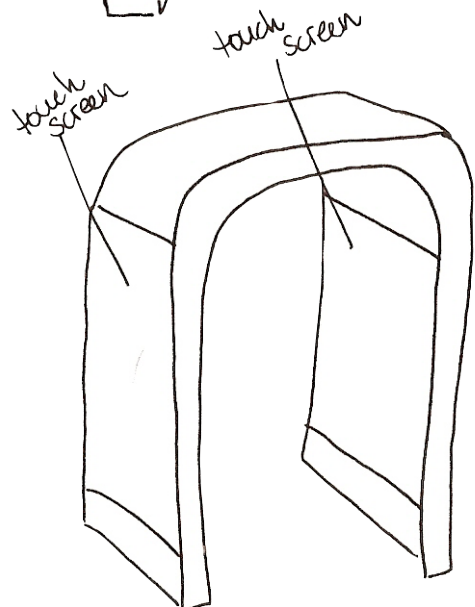
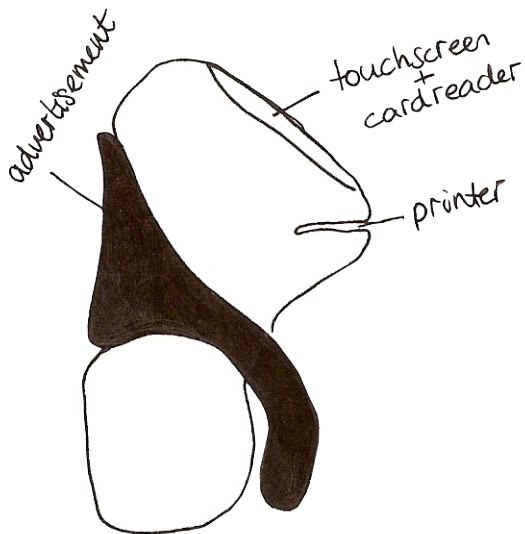
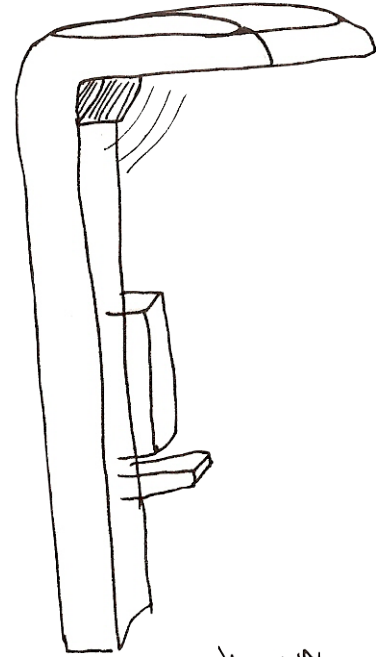
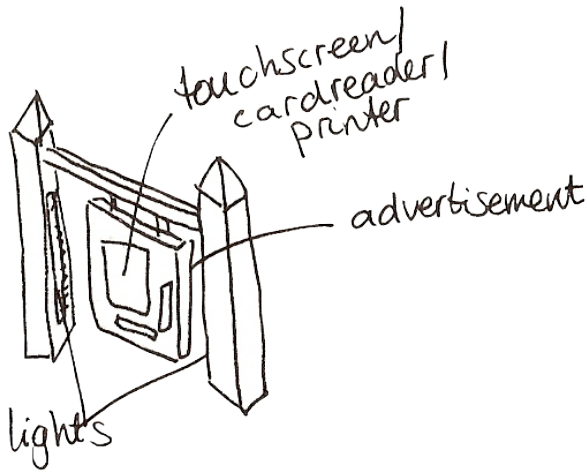
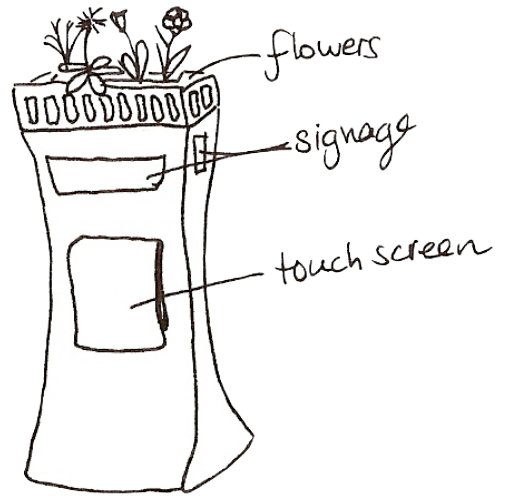
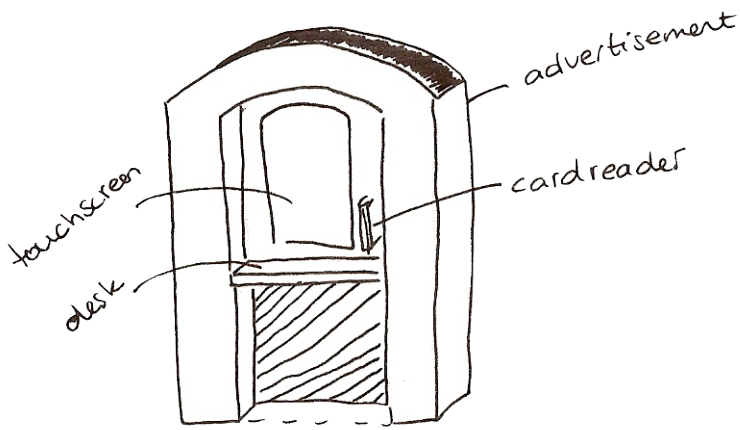
Appendix F | all ideas



Appendix F | all ideas

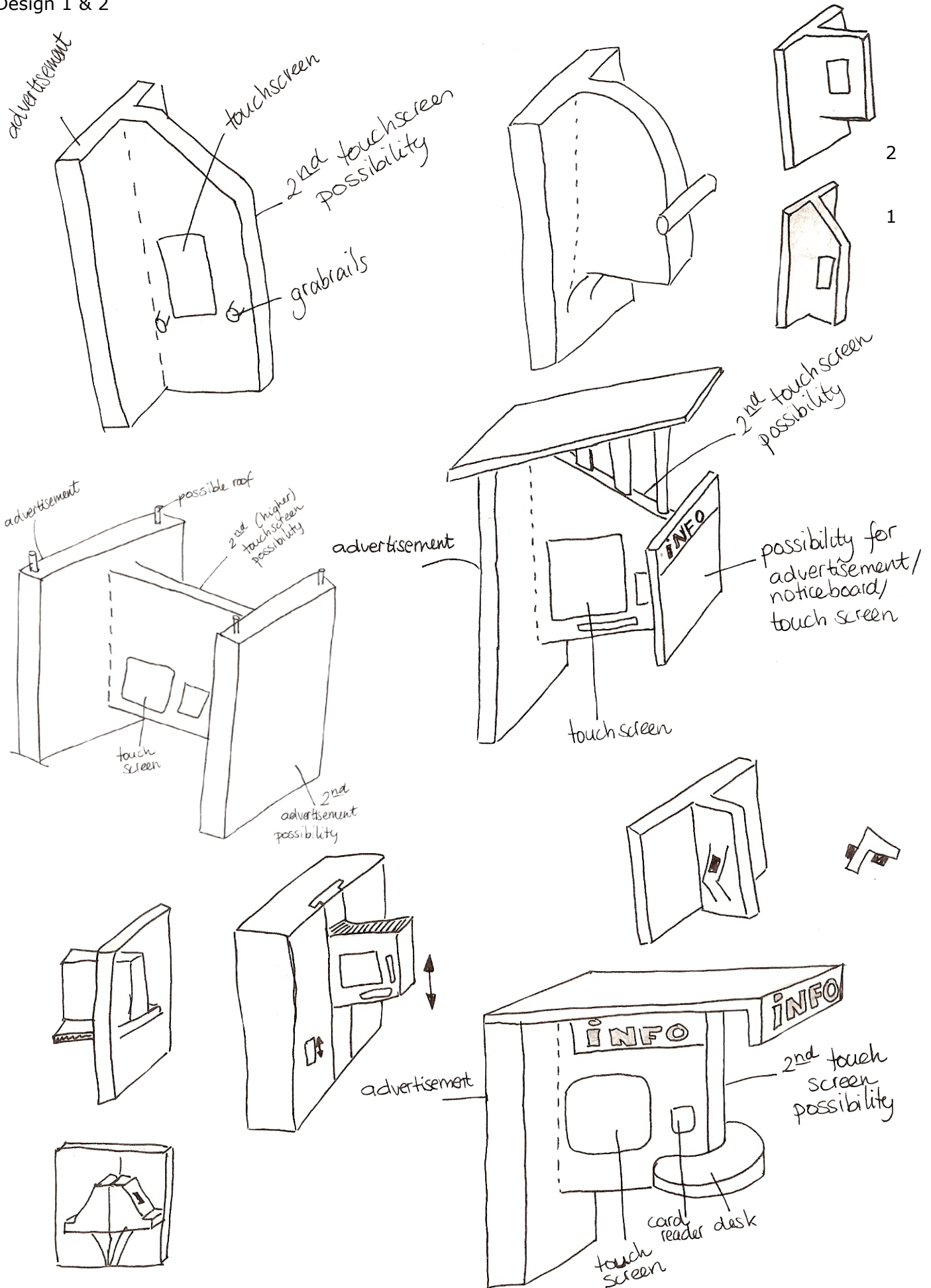


Appendix F | all ideas

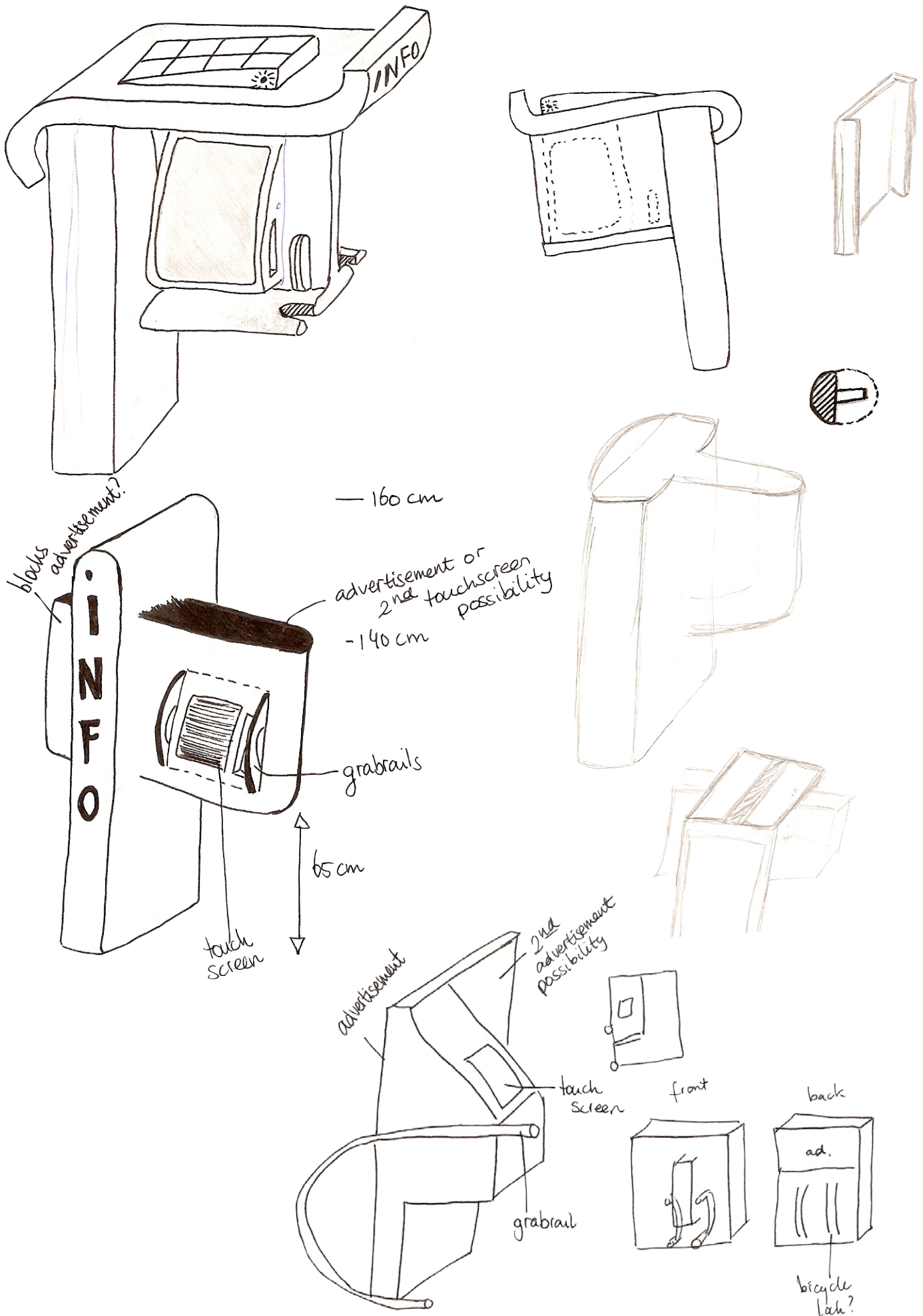


Appendix G | design 1-5

Design 1 & 2

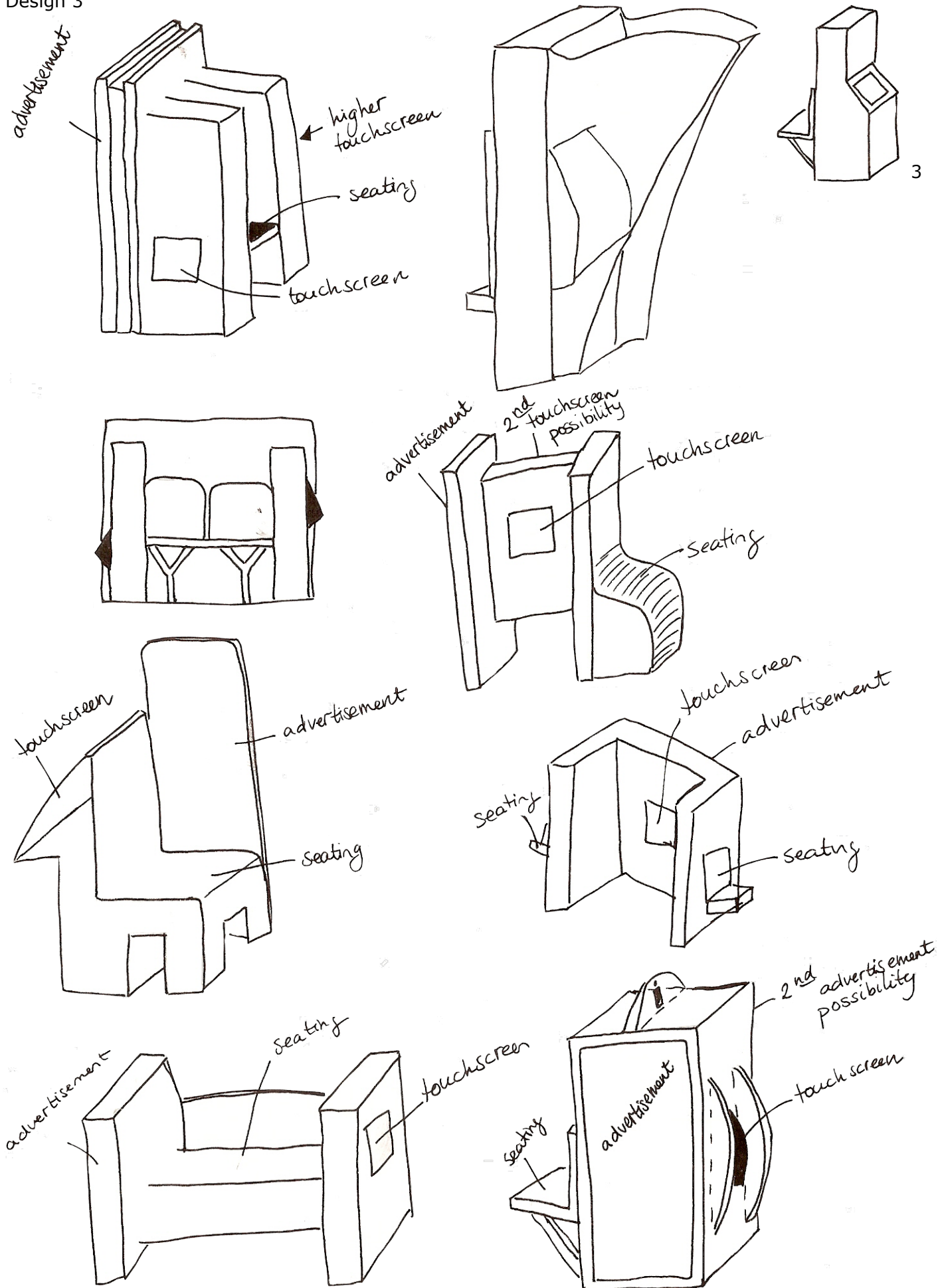


Appendix G | design 1-5



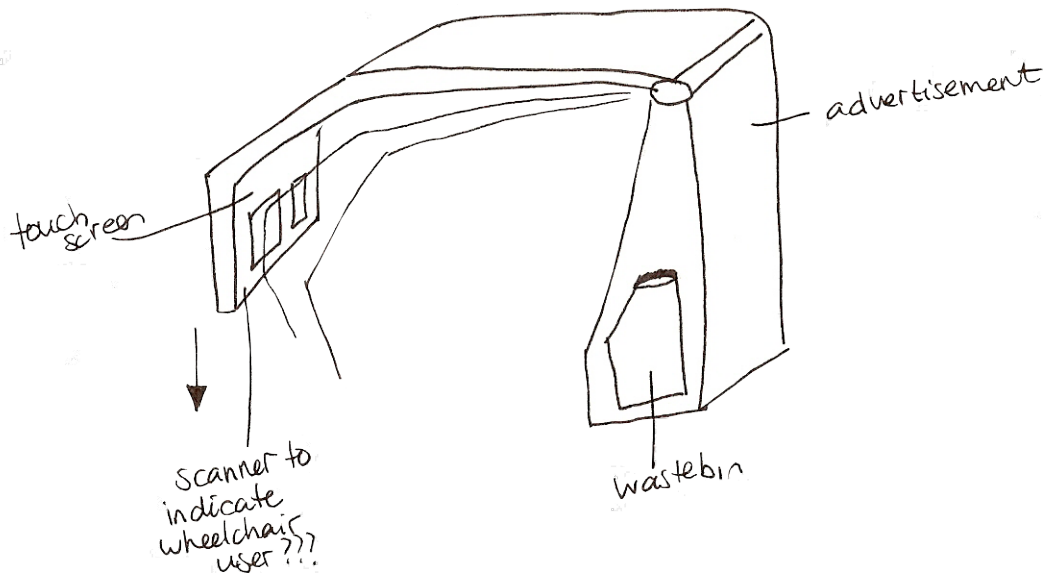
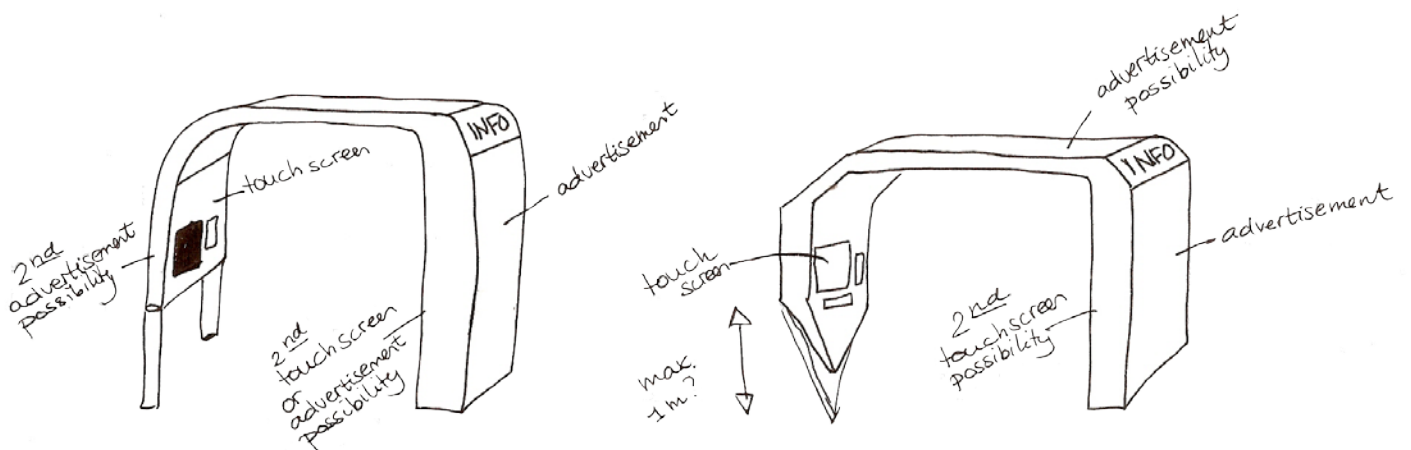
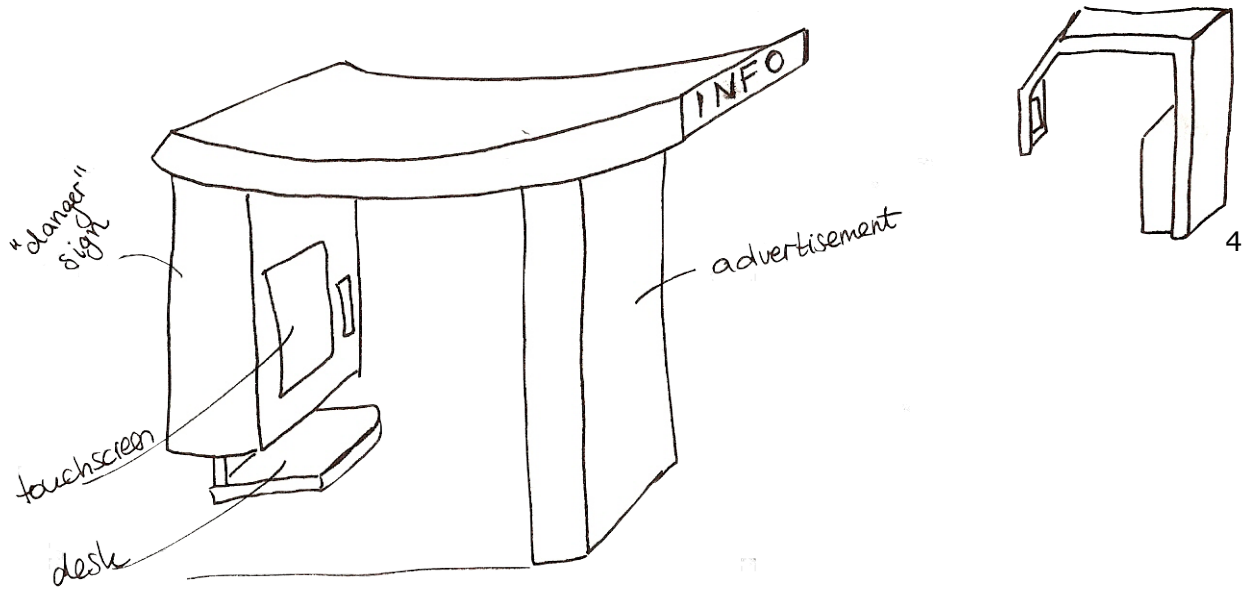
Appendix G | design 1-5

Design 3



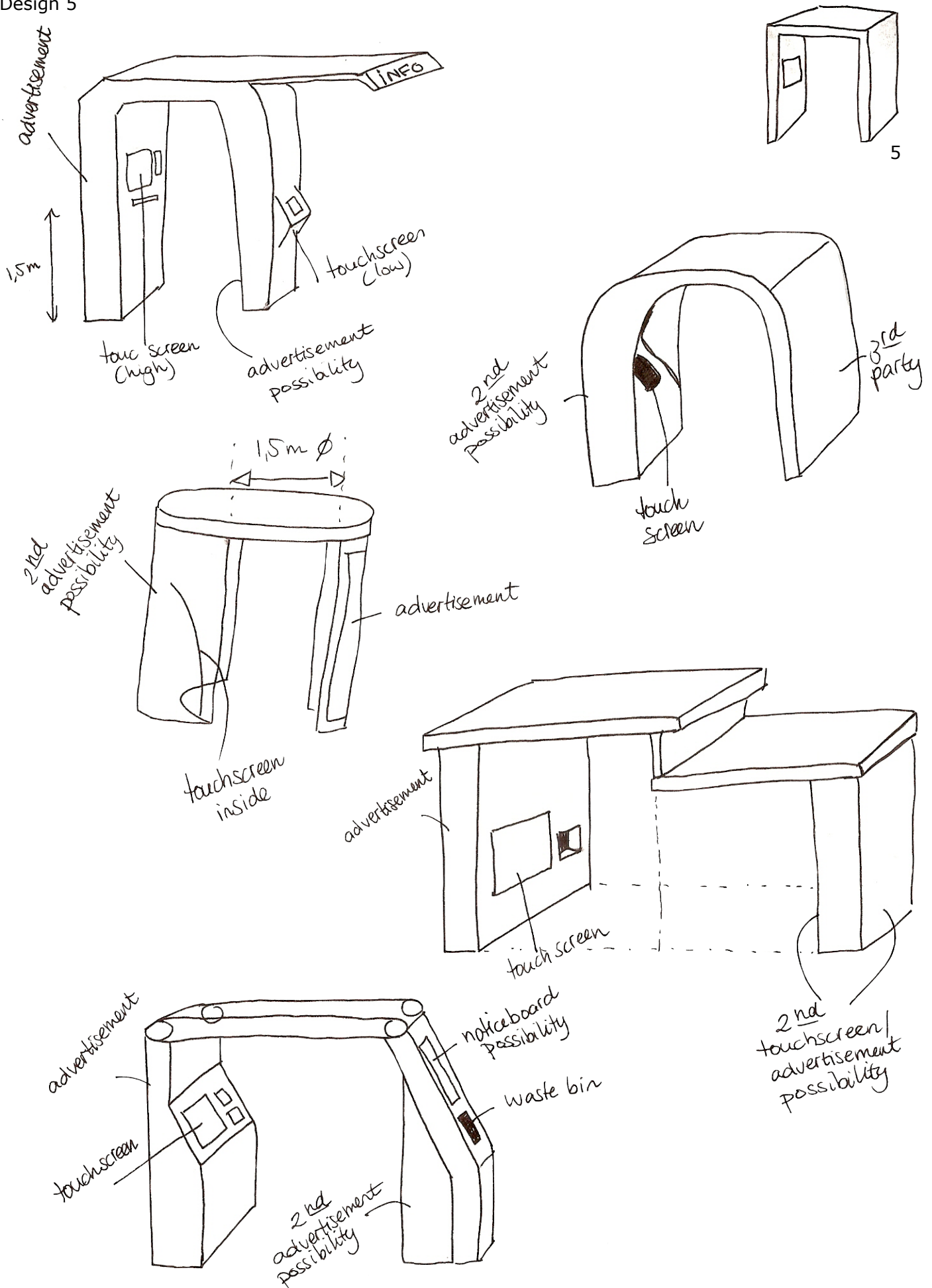
Appendix G | design 1-5

Design 4



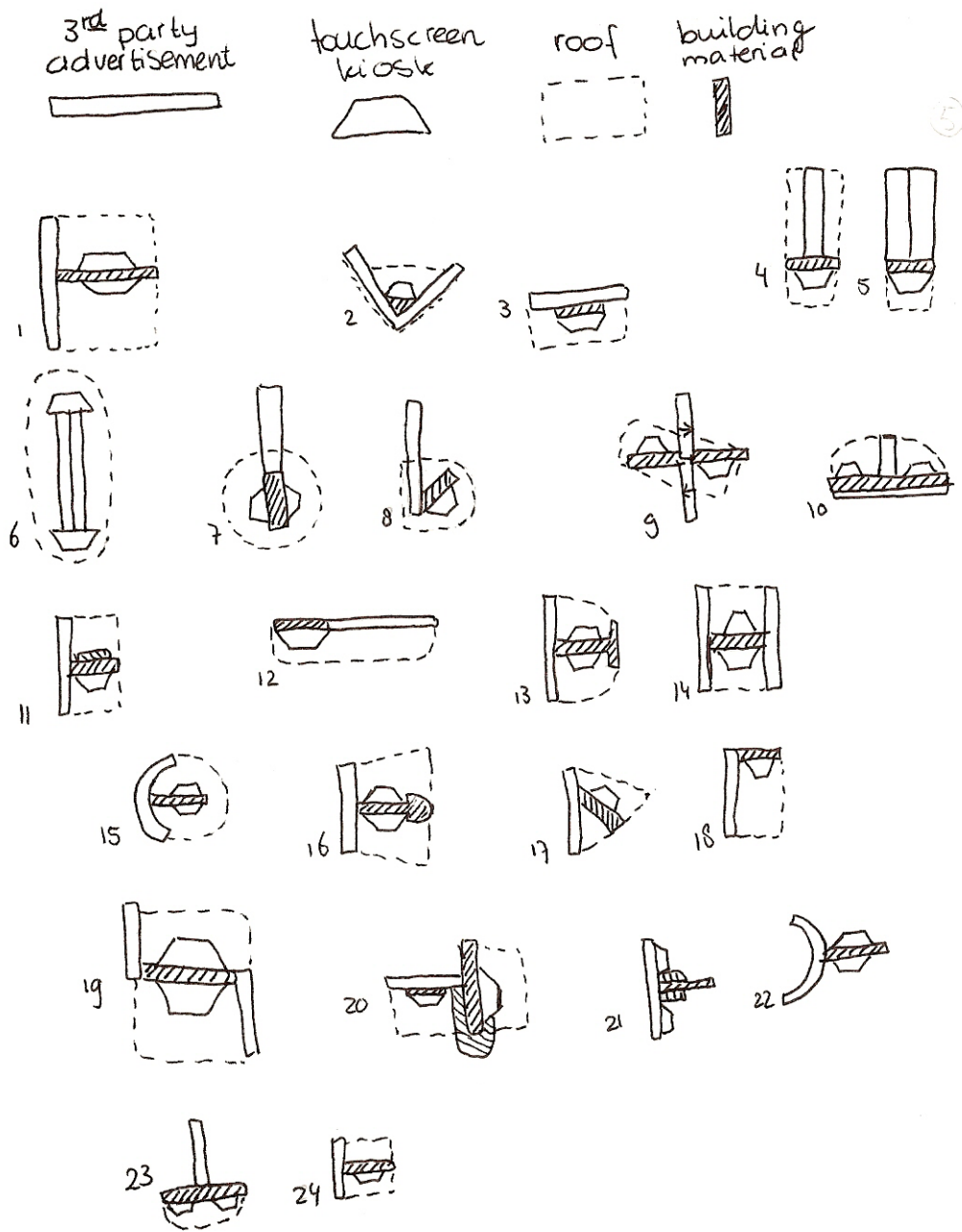
Appendix G | design 1-5

Design 5

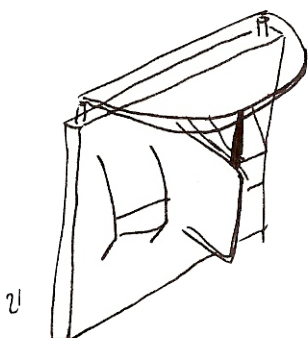
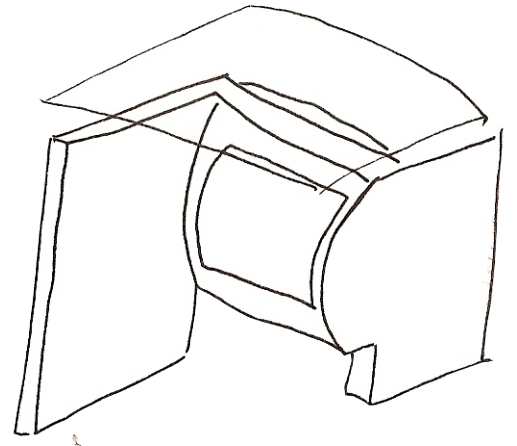
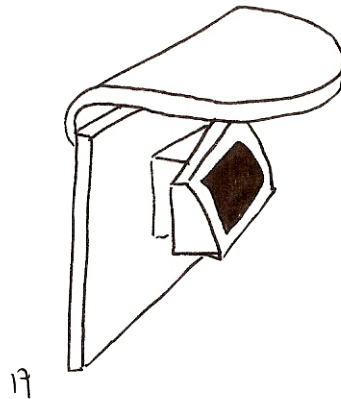
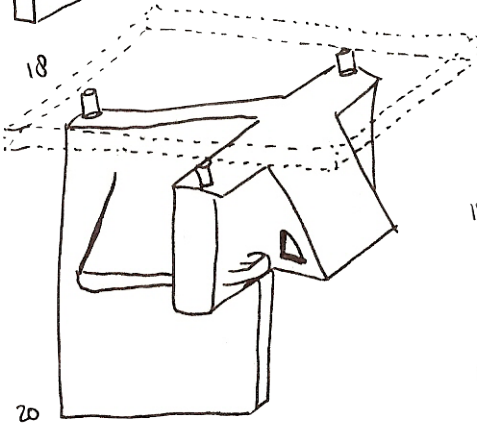
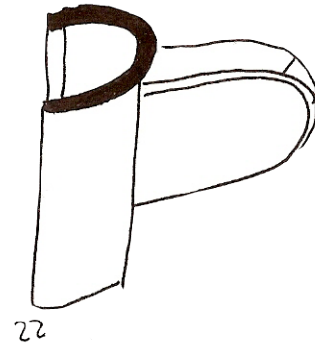
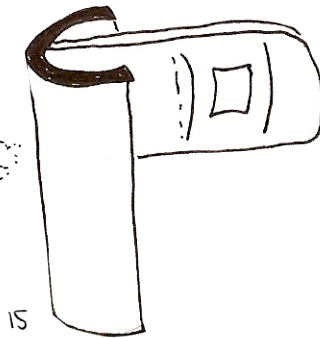
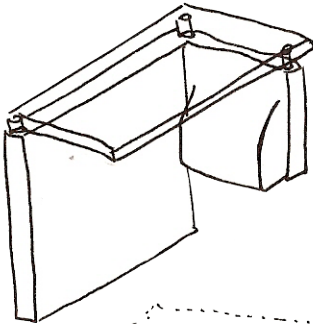
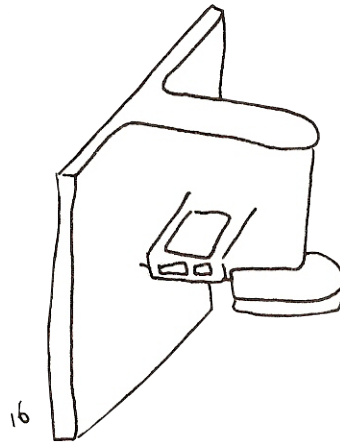
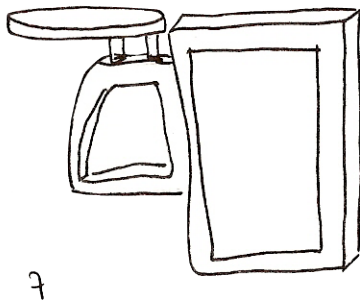
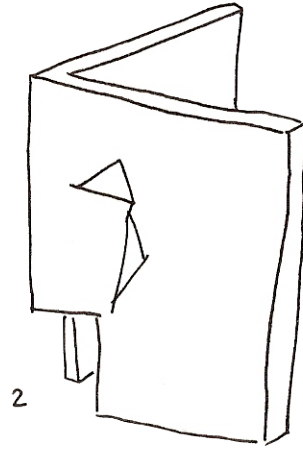
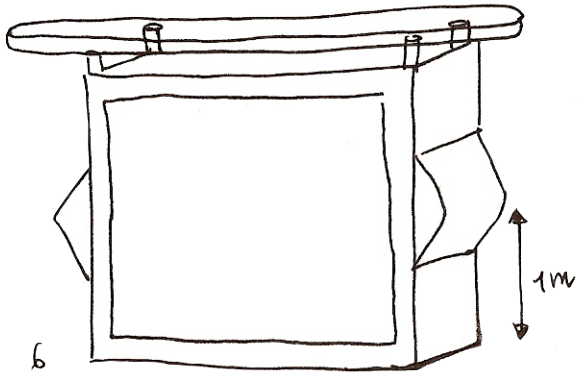


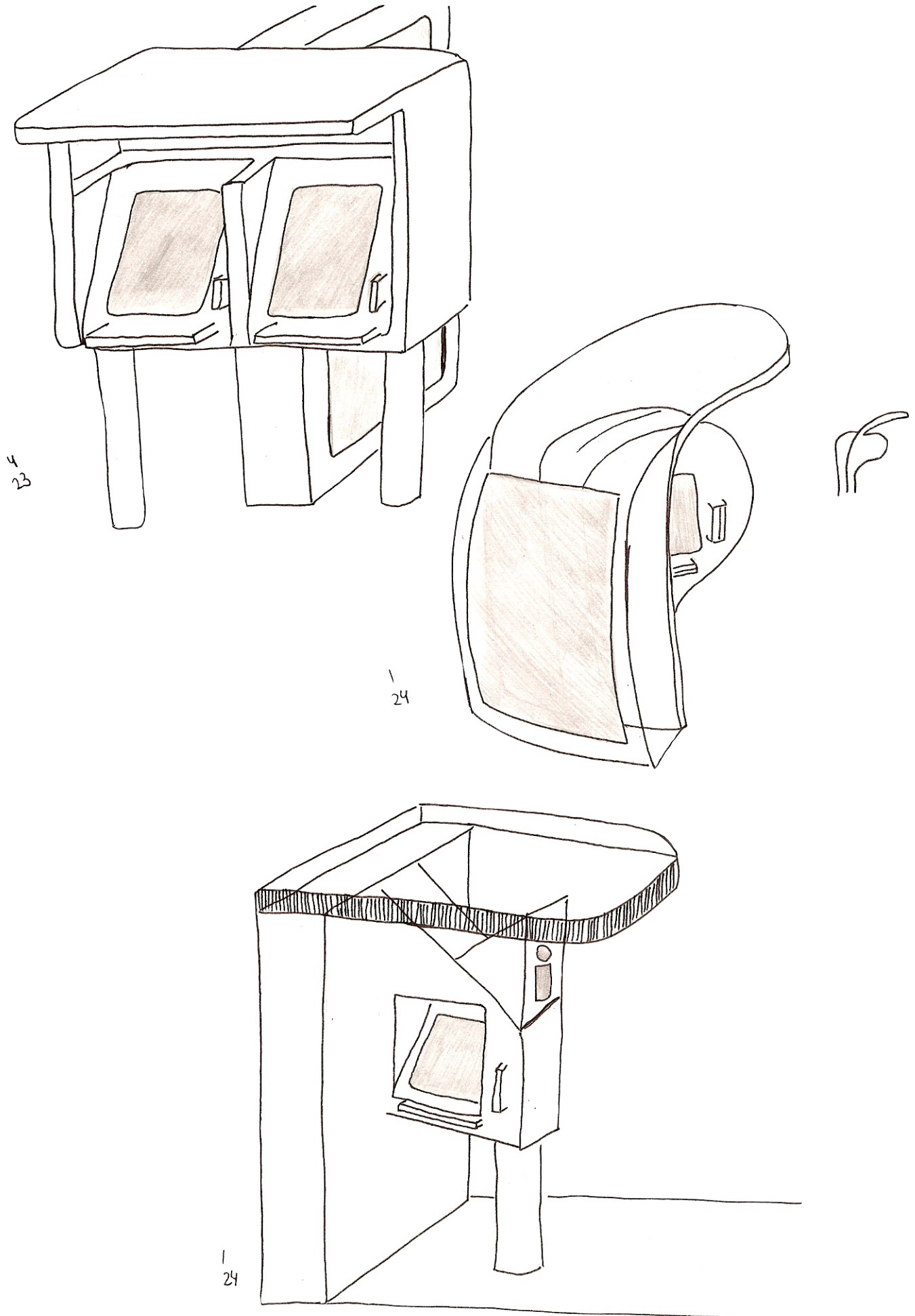
Appendix H | design A-B

Design A

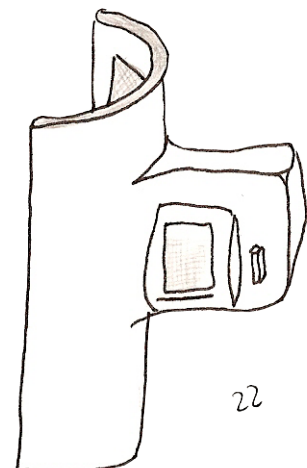
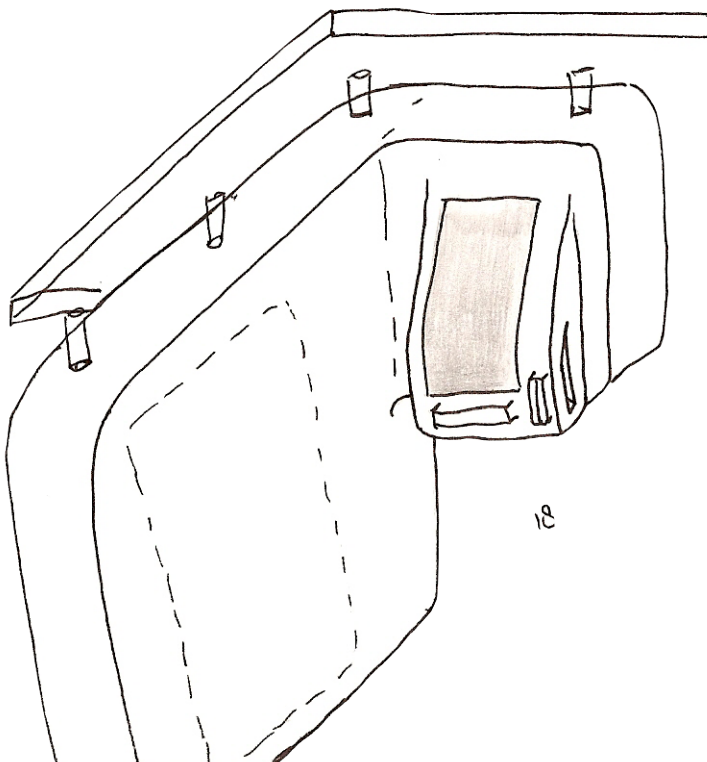
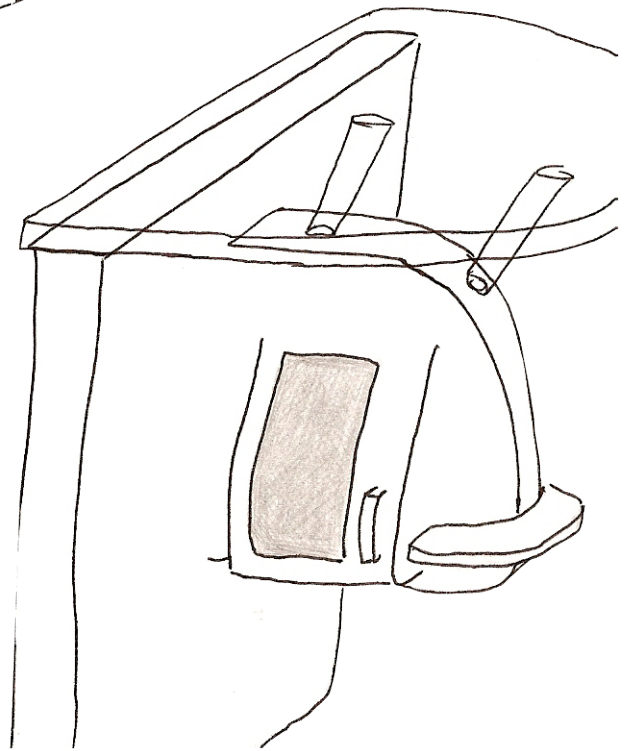
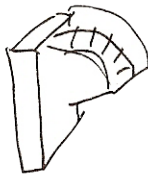
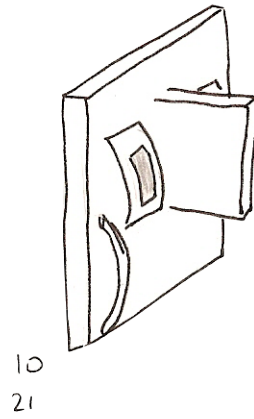
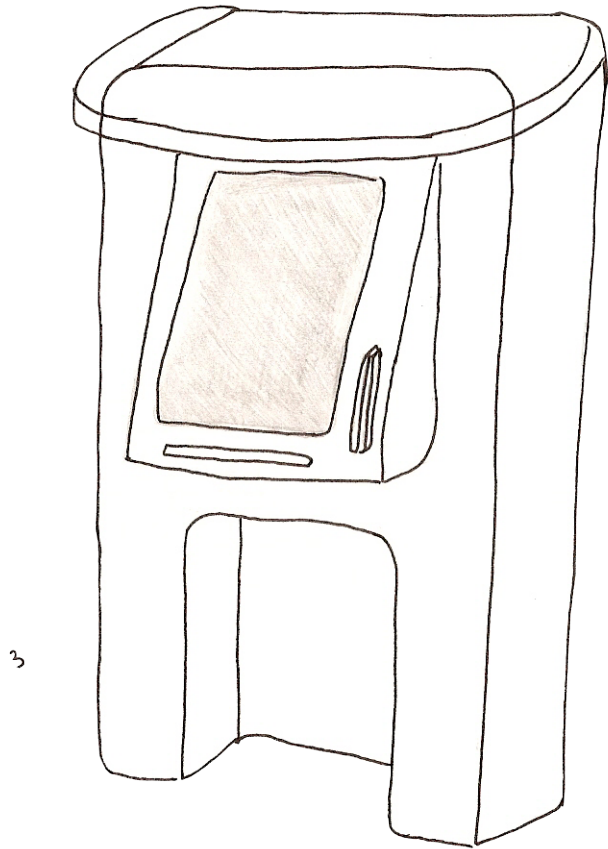


Appendix H | design A-B





Appendix H | design A-B



Appendix H | design A-B

Design B

3rd party advertisement



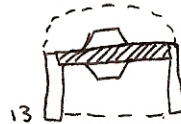
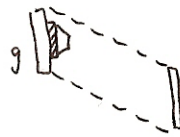
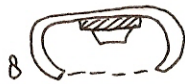
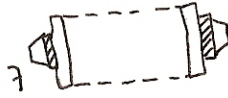
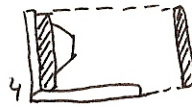
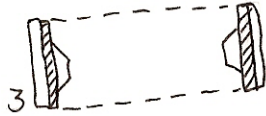
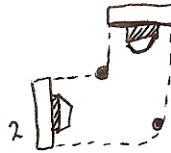
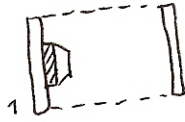
touchscreen kiosk

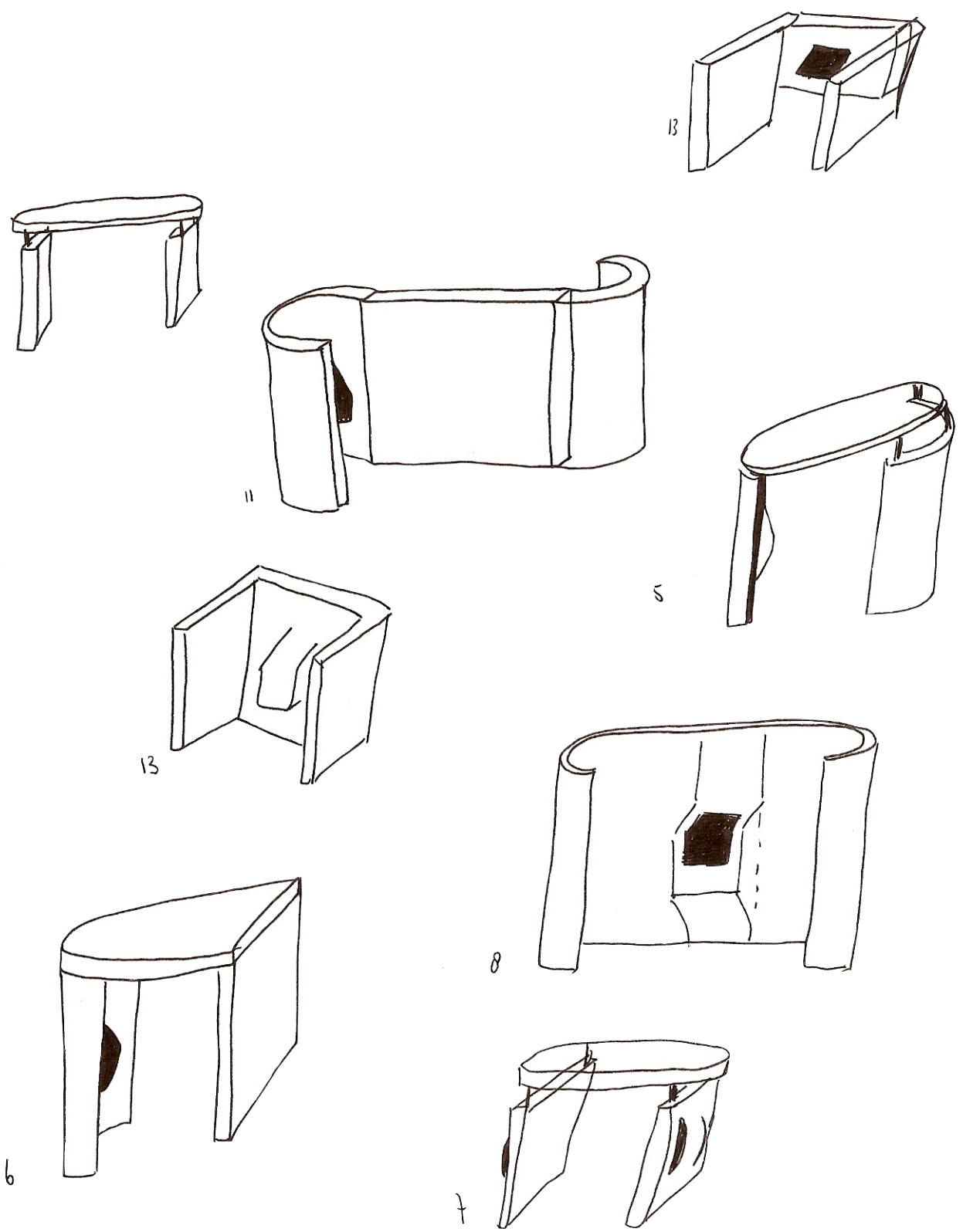


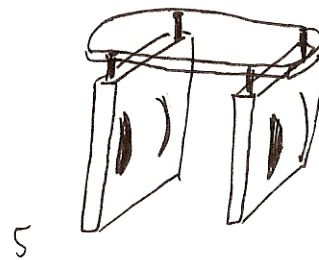
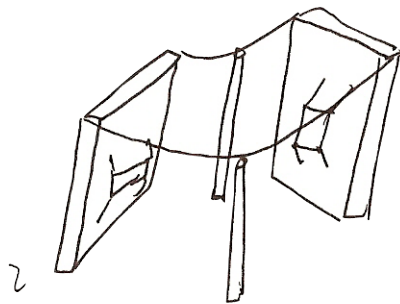
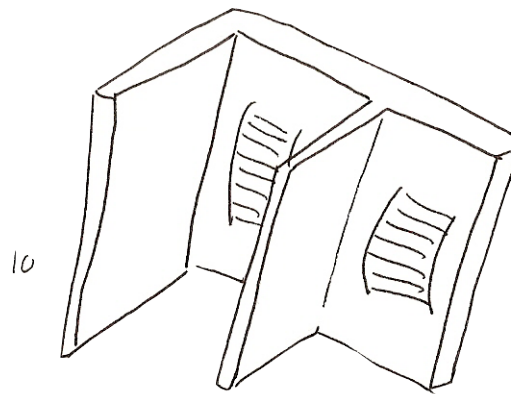
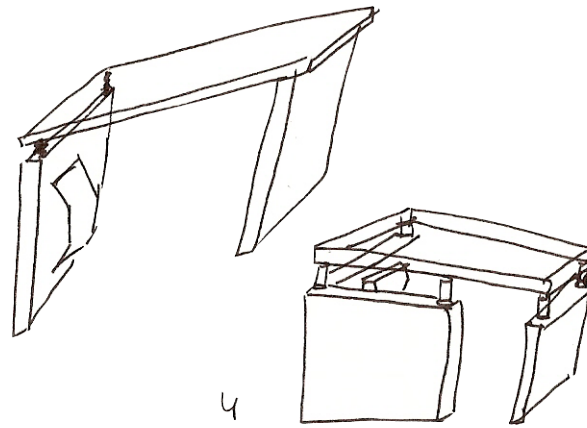
roof



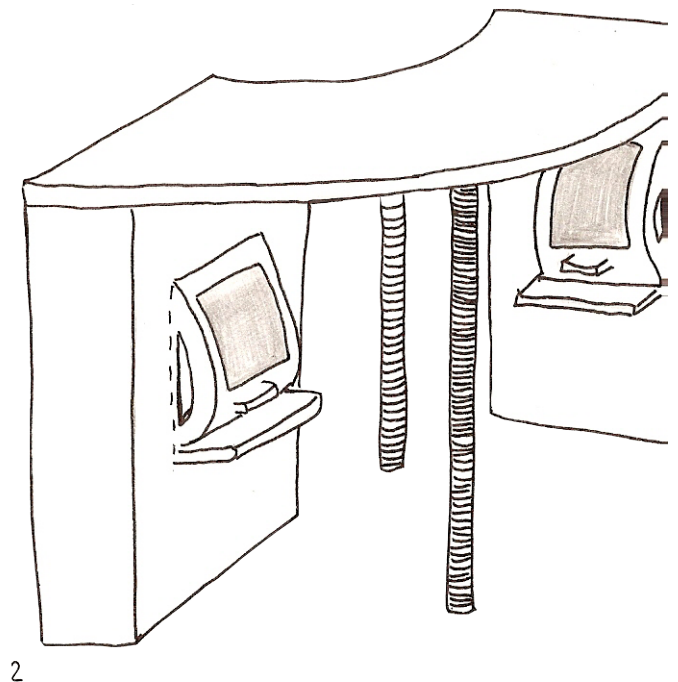
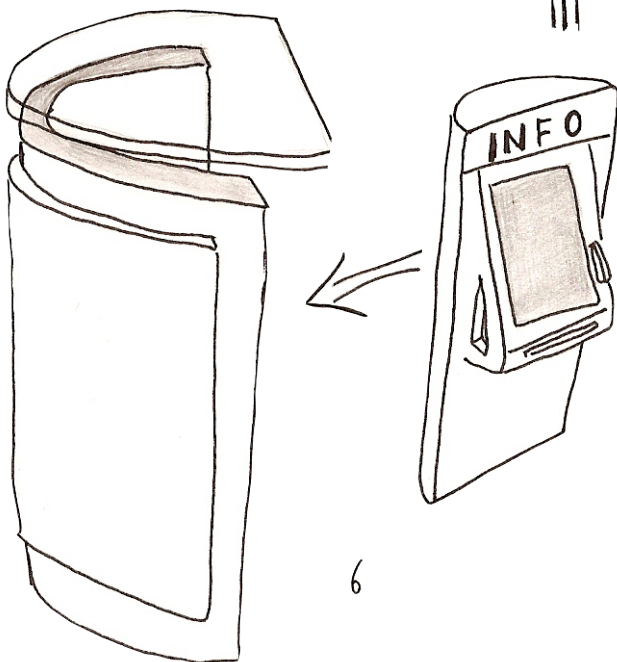
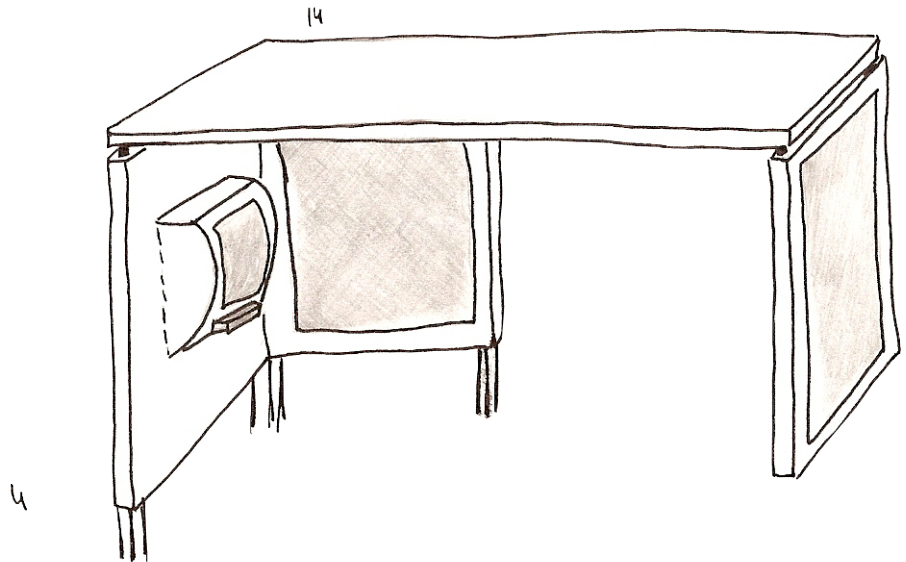
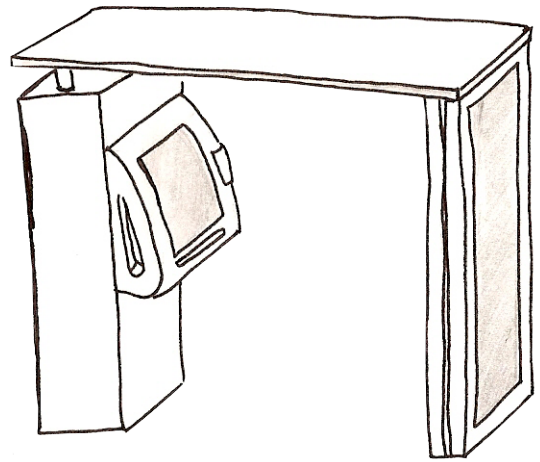
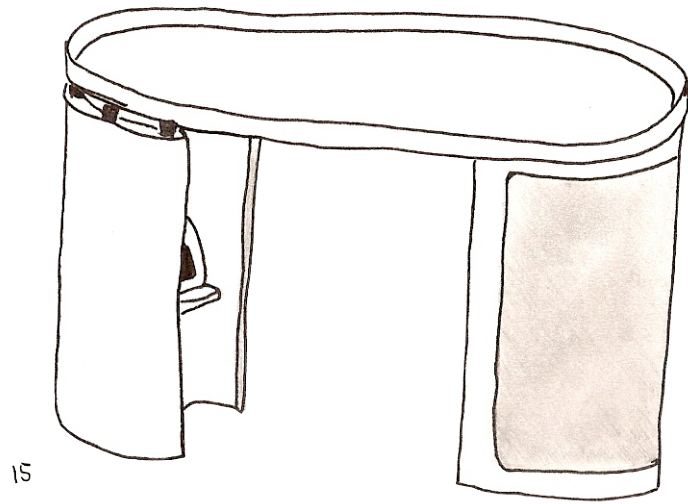
building material







Appendix H | design A-B



Appendix I | advantages vs. disadvantages

Req.	Complies, because:	Preferred design
1 standard hardware	Both designs will comply with this requirement; it is not an option to not satisfy these needs as that will mean the kiosk is not functioning well and the assignment is not carried out correctly. Only the refrigeration unit raises some questions, but in both designs.	-
2 other components	Both designs will be able to satisfy this need. However, first ideas of design B do not include a desk. Design B does have a slight disadvantage, because a desk might make the enclosure even smaller, which could form a problem with wheelchair clearance. The desk will have to be 210 x 300 mm and the preferred wheelchair clearance is 1704 mm. Depending on the exact position of the desk, this can lead to a width of almost 2000 mm between the two posts. This will result in a very large construction, while design A has infinite wheelchair clearance as it is initially not surrounded by walls.	A
3 modularity	Design A and B will comply with this requirement. Being modular is one of the characteristics of innovation by Envent. Both designs are developed with this modularity in mind.	-
4 aesthetical appeal and user friendliness / experience	It is very difficult to express how the design will be received by the audience. It is also not yet possible to suggest whether users would feel comfortable or safe using the design. Both designs will in a way fulfil having privacy, the user's body will block part of the kiosk and the construction is not open at all four sides. The design can also be placed in such way to create even more privacy. Because design B is a more enclosed design (users have to 'step inside') it might possibly easier satisfy privacy needs. Or at least the user might feel like having more privacy. It is very much preferred to satisfy this requirement, because this would improve either design. Design B is slightly preferred because it might provide more privacy.	B
5 laws and regulation	There is no way in escaping the law. Both designs will comply with these requirements. If they do not, the designs need to be adjusted. However, because design B is a more enclosed kiosk, wheelchair clearance might become a problem easier. To make a 180° turn, at least 174 cm space is required. Design A will more easily have this free space, so will less likely need adjustments. For this reason design A might be able to more easily satisfy this requirement.	A
6 safety	Safety is very important; therefore all requirements regarding safety will have to be met. However, it is possible to indicate that design A might be lighter in weight. Although design B 'consists' of more 'air' and open space, the overall construction of this design is larger and therefore probably heavier than the construction of design A. Design B might be about 1,5x heavier than design A.	A

Appendix I | advantages vs. disadvantages

Req.	Complies, because:	Preferred design
7 surroundings and environment	<p>Because the location of the designs might change, it is difficult to say which design will fit the best. Both designs will be able to change in their aesthetic design. It might however be an advantage that design A is a less large construction than design B, resulting in a less obstructive design and therefore more fitting the possible locations. On the contrary, as design B is a larger construction it might be better recognised from greater distances and in open areas, which can be an advantage too. Design A will again be able to blend in high-traffic areas easier.</p> <p>Both designs will not form any or will form as less as possible danger to the environment by not leaving waste, not consisting of harmful substances and by not hurting users or other people (or animals) in the environment.</p> <p>Design A has a slight preference, because it is more important that the design does not provide obstruction than whether it is recognisable from far away distances.</p>	A
8 materials	<p>Both designs must comply with this requirement. These requirements regarding materials will be taken into account during the detailing of the design and with further decisions on materials. Both designs will be able to comply with these requirements.</p>	-
9 maintenance and vandalism	<p>Design A and design B will both satisfy this requirement. However, human behaviour is a factor here, and human behaviour is unpredictable. Design B might look more stable and therefore more vandalism-proof, but depending on the construction design A could be just as stable.</p>	-
10 Envent	<p>It is difficult to say whether the designs completely fit the existing Envent brand. However, both designs are chosen by Envent. This does not immediately mean that the designs fit the brand, but as Envent is in charge of their own brand identity this indicates the requirement is satisfied by both designs. However, at the moment Envent's kiosk look more like design A than design B. They consist of one pillar, unlike design B, which consists of two pillars.</p> <p>At this moment it is very difficult to exactly calculate the costs. It can be indicated that design B will be more expensive as it is a larger construction and therefore might use more material and might also take more work hours to assembly/install (hardware components are alike in both designs).</p>	A

Appendix I | advantages vs. disadvantages

Req.	Complies, because:	Preferred design
11 construction, instalment, maintenance, and recycling	<p>Both designs will be designed in order to be as easy as possible in assembly, construction, and instalment. However, because design A is a smaller overall construction, this design will possibly be easier and faster constructed. Another advantage might be that the whole of design A can be transported to the instalment site, while design B might be transported in pieces and must be build up at the site. Design A might also be transported in pieces, but design B can not be transported in one piece, this takes up too much unnecessary space (a lot of air will be packed). Design B might also be heavier as it consists of more components.</p> <p>At this stage it is not possible to make a distinction between the designs regarding the stated time requirements.</p> <p>In both designs the hardware will be located inside the design, within a lockable area. These areas will be easily accessible and neatly designed. Both designs must comply with this requirement; it is very much preferred to satisfy this requirement. In both designs it will be made possible to easily access these service areas.</p> <p>Design A has a slight preference because of its smaller appearance.</p>	A
12 lifecycle	<p>Both designs must comply with this requirement; it is not preferred to not satisfy this need. The choice of material and detail design will provide more insight in this requirement. At this stage both designs will be able to equally satisfy this need.</p>	-

Appendix I | advantages vs. disadvantages

Wish	Complies, because:	Preferred design
1 hardware	Both designs have possibilities for additional functionalities. This was taken into account while brainstorming. Both designs might be able to satisfy this wish.	-
2 user friendly	The goal of both designs is to be as user friendly as possible. Both designs can be adapted to meet requirements of the hearing and vision impaired. At this stage it is only possible to indicate that design B might be easier to adapt, because it is a more enclosed construction, possibly creating better conditions for additional services (e.g. induction loop). In both designs it will be possible to incorporate a separate keyboard with trackball for convenience reasons. Also, materials can be added or changed in order to add to user comfort. More research on materials and their construction will then be necessary. Still, design B is slightly preferred because adding impaired friendly features might be easier.	B
3 energy/environment	Both designs will be able to incorporate energy saving methods. However, with the use of a proximity sensor, design A might be favoured. Because design B is more enclosed, the proximity sensor needs to be more accurate and will be more expensive. In addition, because of the enclosure this might also mean less people notice the interactive kiosk functionality, as it will only be seen when people get very close (closer than to design A).	A
4 audience	Both designs are able to address a broader audience; it will depend on the actual requested features which design might be able to satisfy this wish the best.	-
5 innovation	Both designs will be able to incorporate new technologies in their design. It will again depend on the actual requested features to indicate which design might be able to satisfy this wish the best. New technologies are very well capable of adding also new functionalities to the design. Both designs might be able to satisfy this wish.	-
6 response of functionalities	Both designs can be adapted to have a much quicker response. This is also part of the software development. There is not clear preference for design A or B regarding the satisfaction of this wish.	-

Total	Equal	Design A	Design B
Requirements	5	6	1
Wishes	4	1	1

Appendix J | CAD drawings

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The drawing shows a rectangular panel with two rectangular cutouts. The front view (top) has a total width of 852 and a height of 190. The top view (bottom) shows a rectangular shape with rounded corners and two rectangular cutouts. The drawing includes various annotations such as R30 and R35 for radii, and a grid system with letters A, B, C and numbers 1, 2, 3, 4, 5, 6.

NAME	DATE

CHKD:
 APPD:

 POLYPLANSER DRAWING
 ALL DIMENSIONS ARE IN MM
 UNLESS SPECIFIED
 DRAWING DATE: 11.08.09
 DRAWN BY: ANKE RENKENS

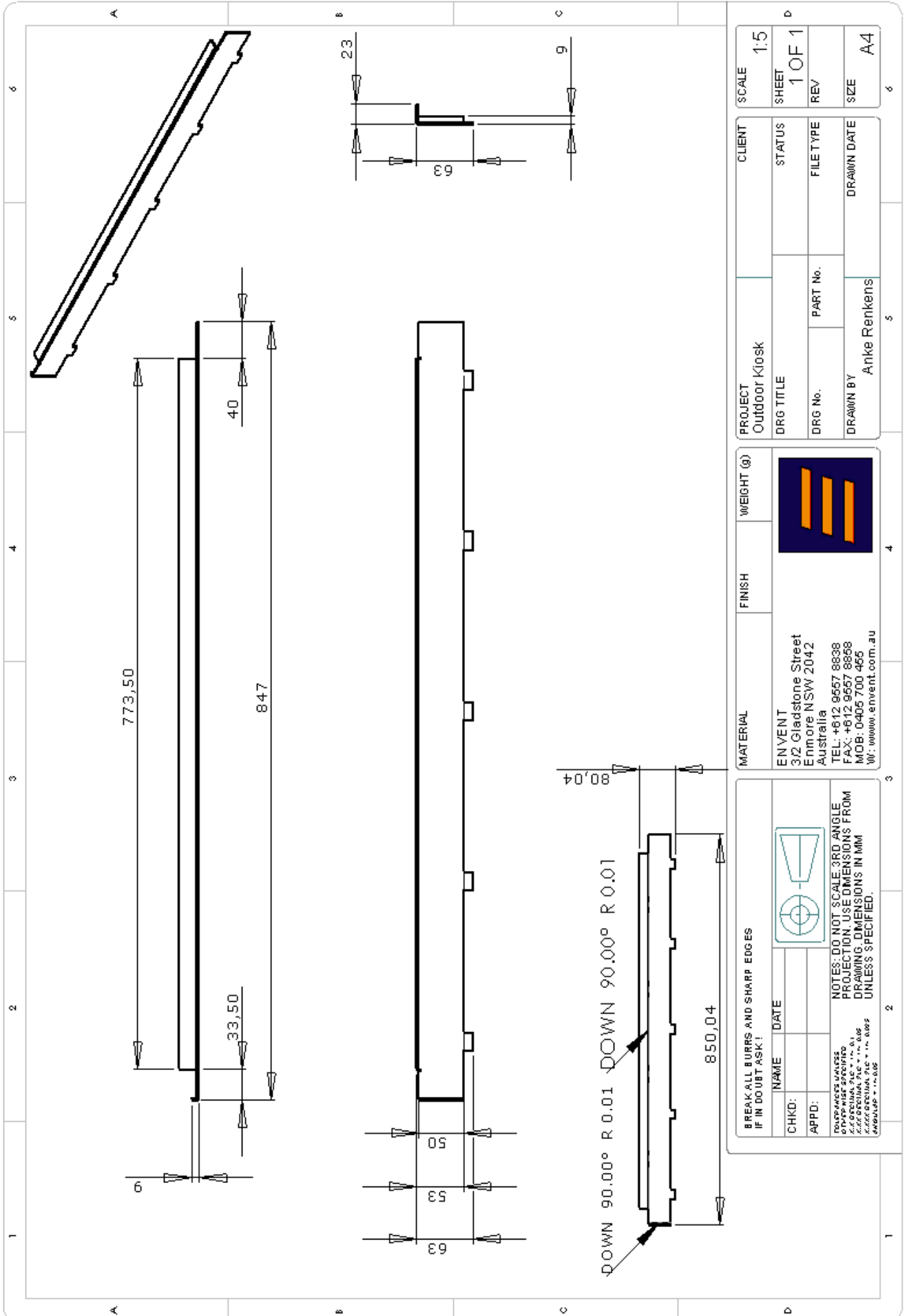
NOTES: DO NOT SCALE. 3RD ANGLE PROJECTION. USE DIMENSIONS FROM DRAWING. DIMENSIONS IN MM UNLESS SPECIFIED.

MATERIAL	FINISH	WEIGHT (g)
ENVENT 3/2 Gladstone Street Enmore NSW 2042 Australia TEL: +612 9657 8838 FAX: +612 9657 8858 MOB: 0405 700 465 W: www.envent.com.au		

PROJECT	CLIENT	SCALE
Outdoor Kiosk		1:8
DRG TITLE	STATUS	SHEET
		1 OF 1
DRG No.	FILE TYPE	REV
PART No.	DRAWN DATE	SIZE
		A4
DRAWN BY		
Anke Renkens		

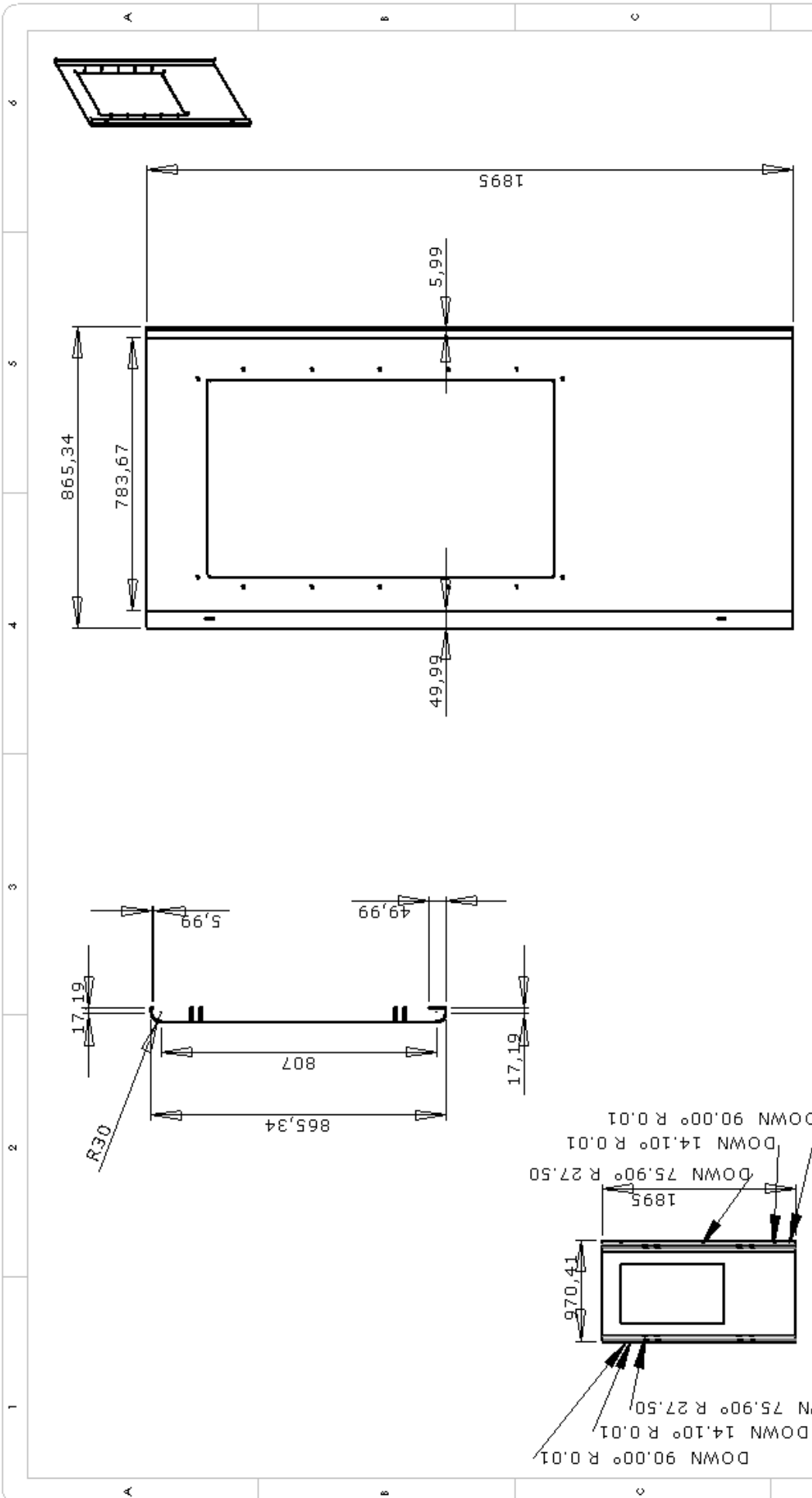
Appendix J | CAD drawings


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Appendix J | CAD drawings

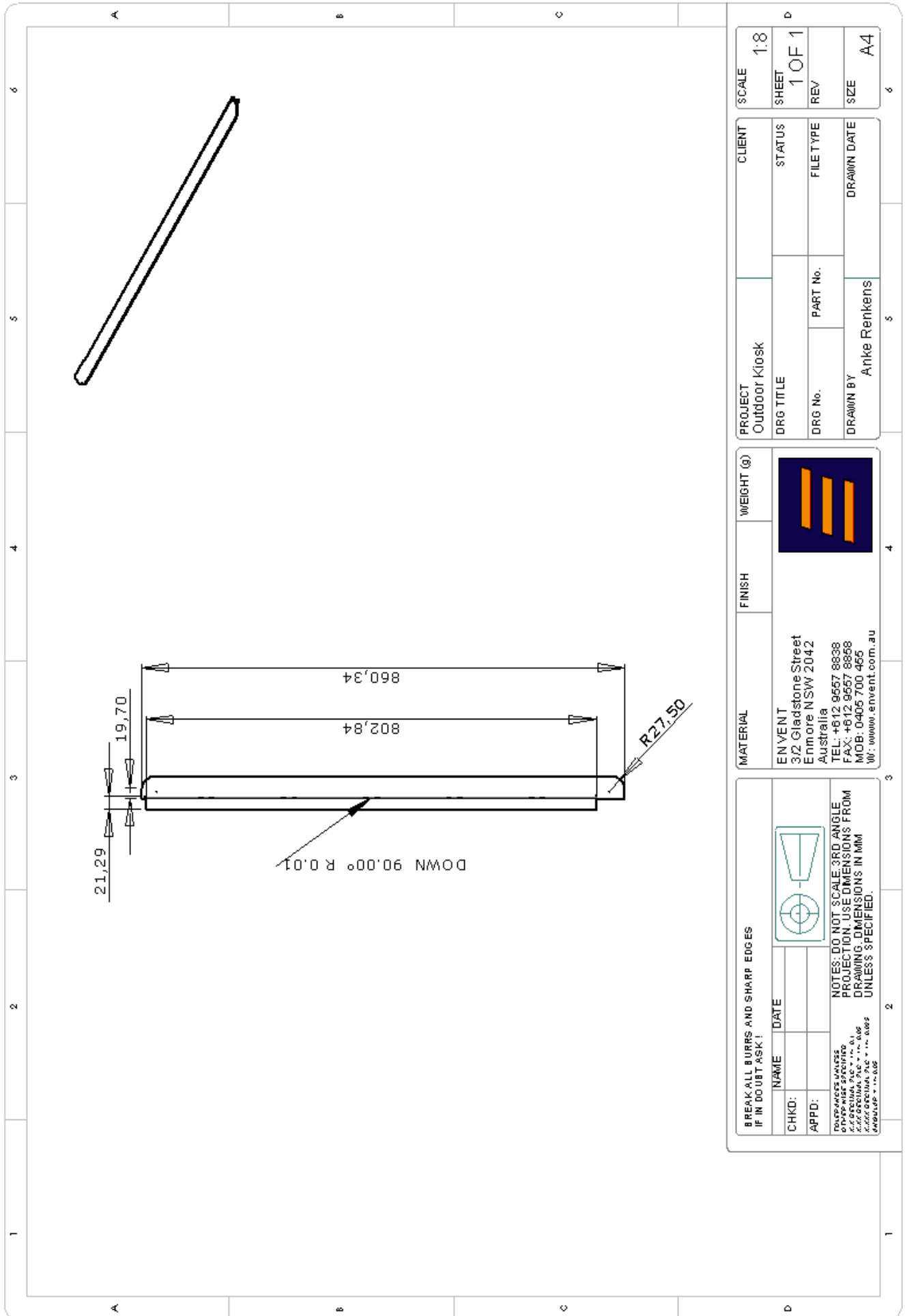
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BREAK ALL BURRS AND SHARP EDGES IF IN DOUBT ASK!		WEIGHT (g)		CLIENT		SCALE	
NAME		FINISH		PROJECT Outdoor Kiosk		SHEET 1 OF 1	
DATE		MATERIAL ENVENT 3/2 Gladstone Street Enmore NSW 2042 Australia TEL: +612 9657 8838 FAX: +612 9657 8868 MOB: 0405 700 465 W: www.envent.com.au		DRG TITLE		STATUS	
CHKD:				DRG No.		REV	
APPD:		NOTES: DO NOT SCALE 3RD ANGLE PROJECTION. USE DIMENSIONS FROM DRAWING. DIMENSIONS IN MM UNLESS SPECIFIED.		PART No.		FILE TYPE	
<small> POLYMER: ABS DIMENSIONS: 20 x 10 x 0.1 SURFACE FINISH: 0.8 SURFACE TREATMENT: 0.005 SURFACE TREATMENT: 0.005 </small>		DRAWN BY Anke Renkens		DRAWN DATE		SIZE A4	

Appendix J | CAD drawings

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BREAK ALL BURRS AND SHARP EDGES IF IN DOUBT ASK!	
CHKD:	DATE
APPD:	
<small> Dimensions unless otherwise specified: 1:1200 (mm) 1:250 (mm) 1:100 (mm) 1:25 (mm) 1:50 (mm) 1:100 (mm) 1:200 (mm) 1:500 (mm) 1:1000 (mm) </small>	
<small> NOTES: DO NOT SCALE 3RD ANGLE PROJECTION. USE DIMENSIONS FROM DRAWING. DIMENSIONS IN MM UNLESS SPECIFIED. </small>	

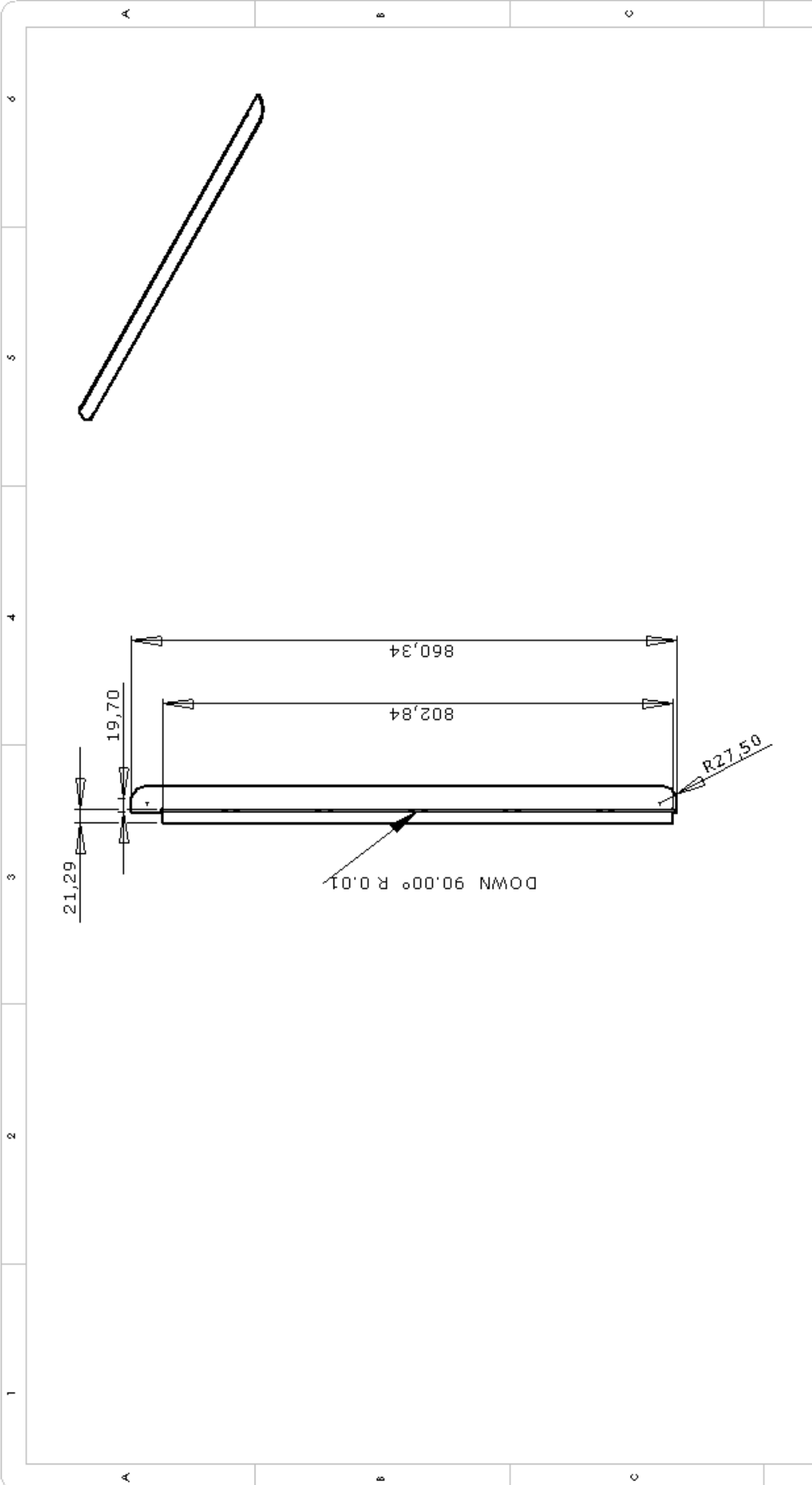
MATERIAL	ENVENT 3/2 Gladstone Street Enmore NSW 2042 Australia TEL: +612 9557 8838 FAX: +612 9557 8858 MOB: 0405 700 465 W: www.envent.com.au
FINISH	
WEIGHT (g)	


PROJECT	Outdoor Kiosk	CLIENT	
DRG TITLE		STATUS	
DRG No.	PART No.	FILETYPE	
DRAWN BY Anke Renkens		DRAWN DATE	

SCALE	1:8
SHEET	1 OF 1
REV	
SIZE	A4

Appendix J | CAD drawings

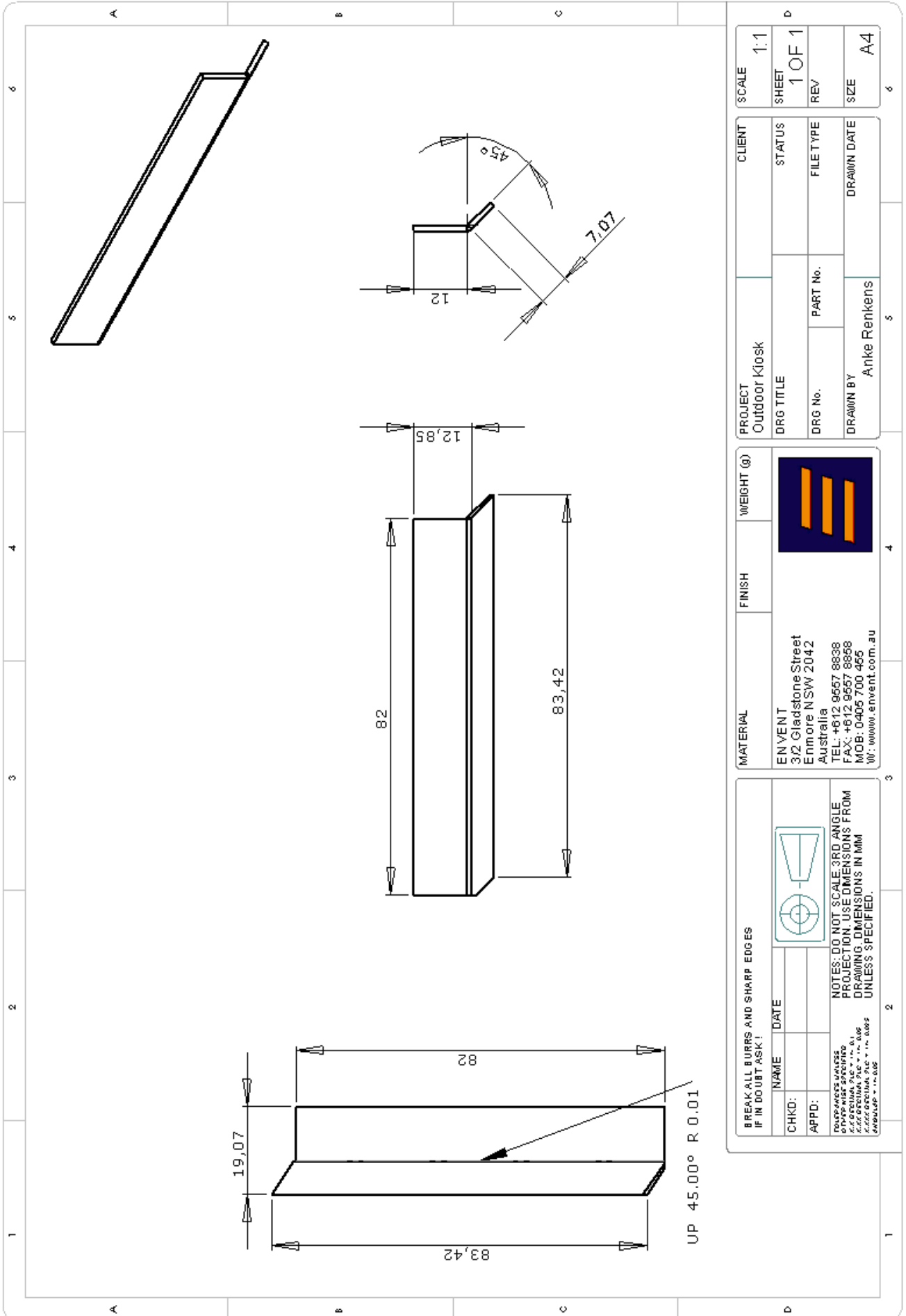
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NOTES: DO NOT SCALE. 3RD ANGLE PROJECTION. USE DIMENSIONS FROM DRAWING. DIMENSIONS IN MM UNLESS SPECIFIED. POLYMARKET UNITS: 2000, 2000, 2000, 2000, 2000, 2000, 2000, 2000, 2000, 2000 2000, 2000, 2000, 2000, 2000, 2000, 2000, 2000, 2000, 2000 2000, 2000, 2000, 2000, 2000, 2000, 2000, 2000, 2000, 2000		WEIGHT (g)		DRAWN DATE		

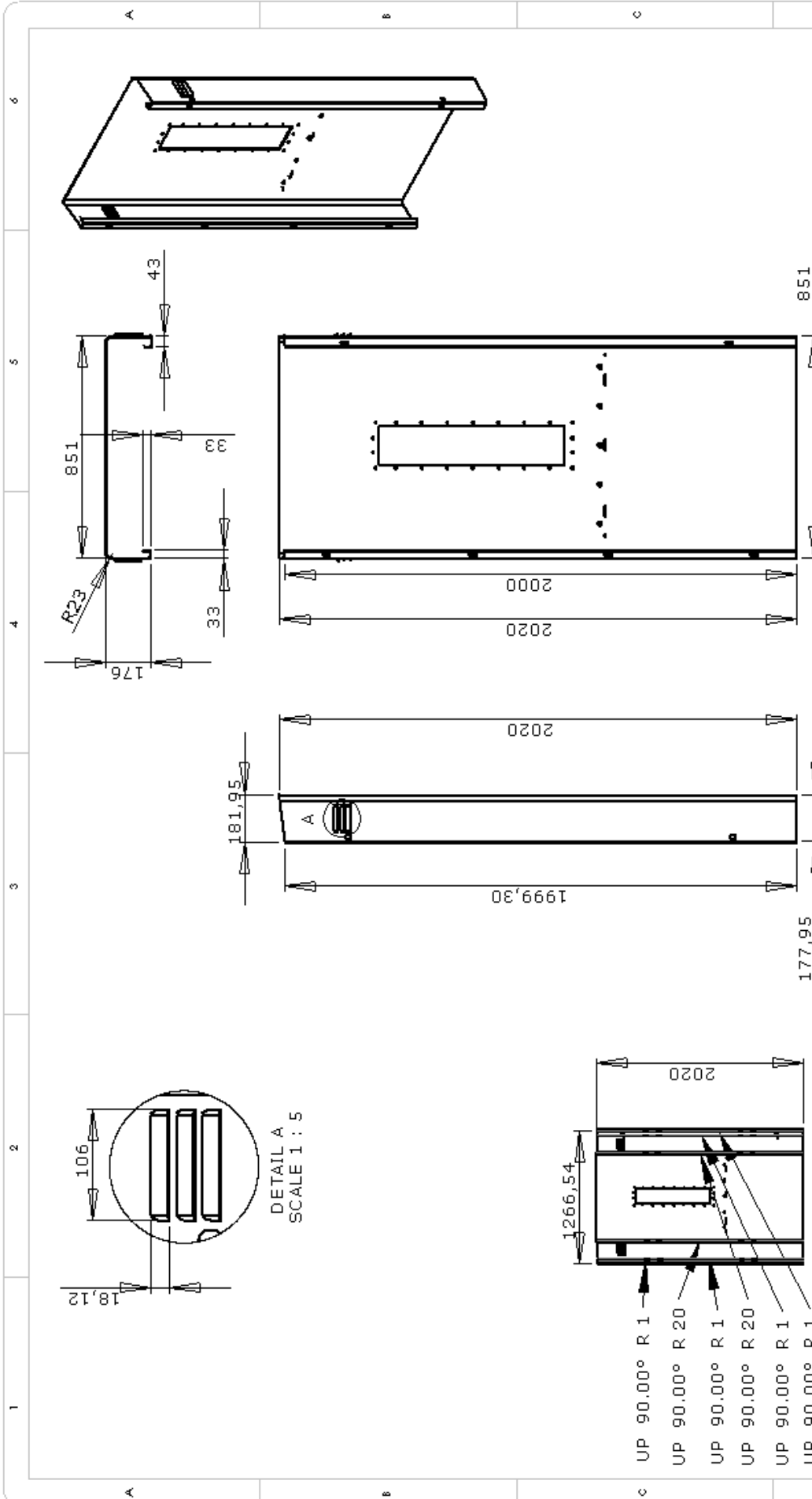
Appendix J | CAD drawings


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Appendix J | CAD drawings

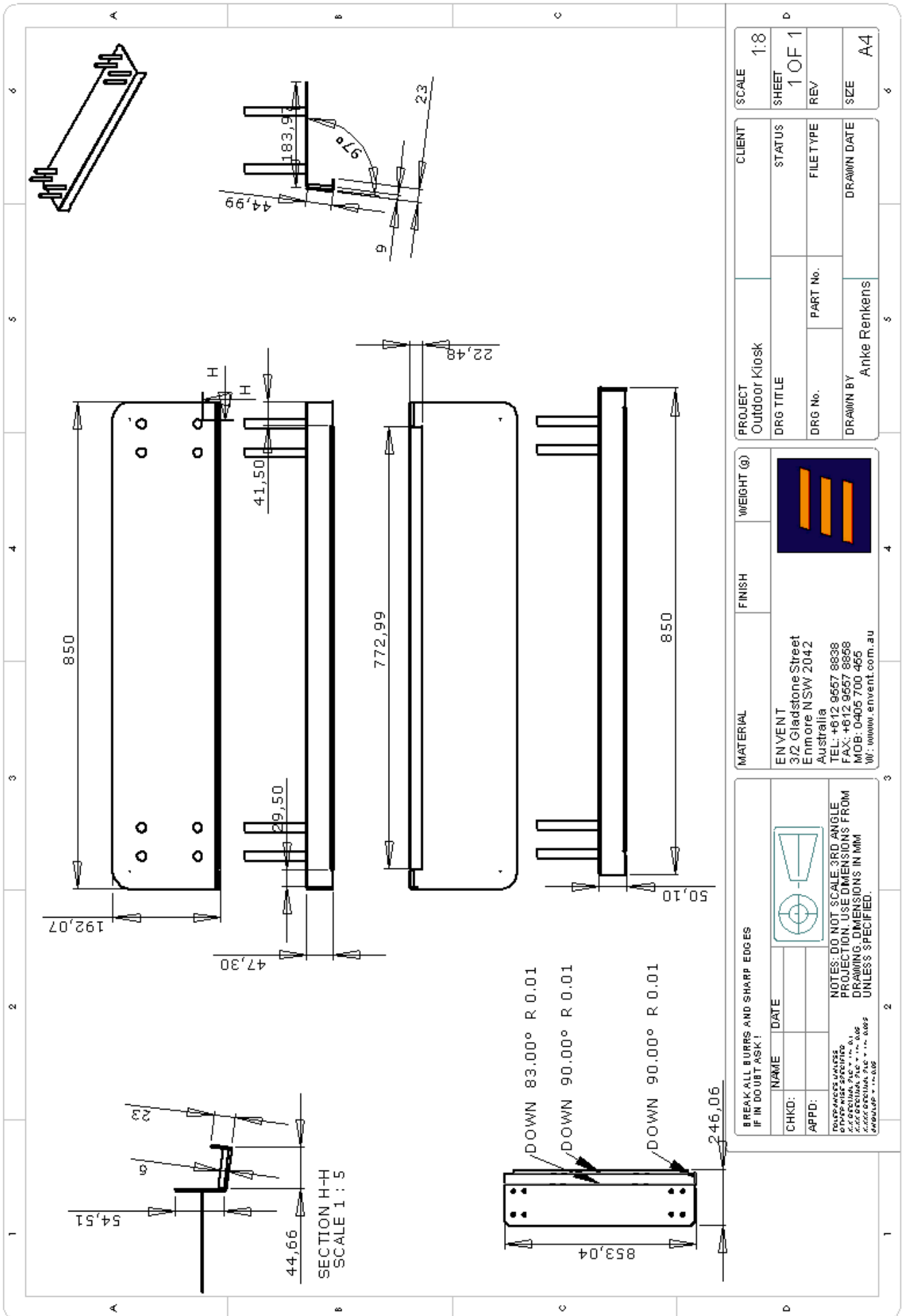
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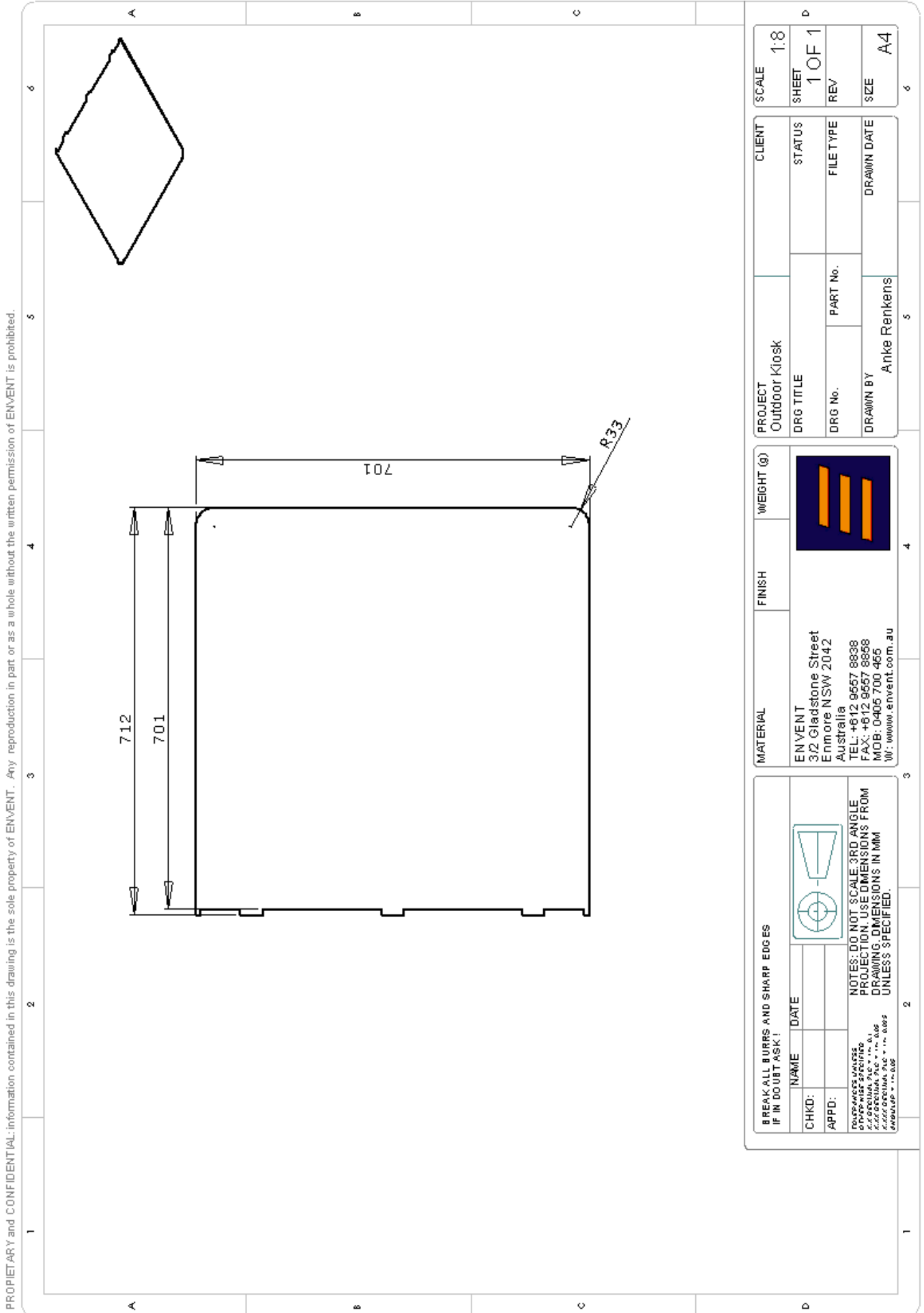
BREAK ALL BURRS AND SHARP EDGES IF IN DOUBT, ASK !		WEIGHT (g)		CLIENT		SCALE	
NAME _____ DATE _____		PROJECT Outdoor Kiosk		STATUS _____		SHEET 1 OF 1	
CHKD: _____	ENVENT 3/2 Gladstone Street Enmore NSW 2042 Australia TEL: +612 9557 8838 FAX: +612 9557 8858 MOB: 0405 700 465 W: www.envent.com.au	DRG No. _____	PART No. _____	FILE TYPE _____		REV _____	
APPD: _____	NOTES: DO NOT SCALE 3RD ANGLE PROJECTION. USE DIMENSIONS FROM DRAWING. DIMENSIONS IN MM UNLESS SPECIFIED.	DRAWN BY Anke Renkens		DRAWN DATE _____		SIZE A4	

Appendix J | CAD drawings

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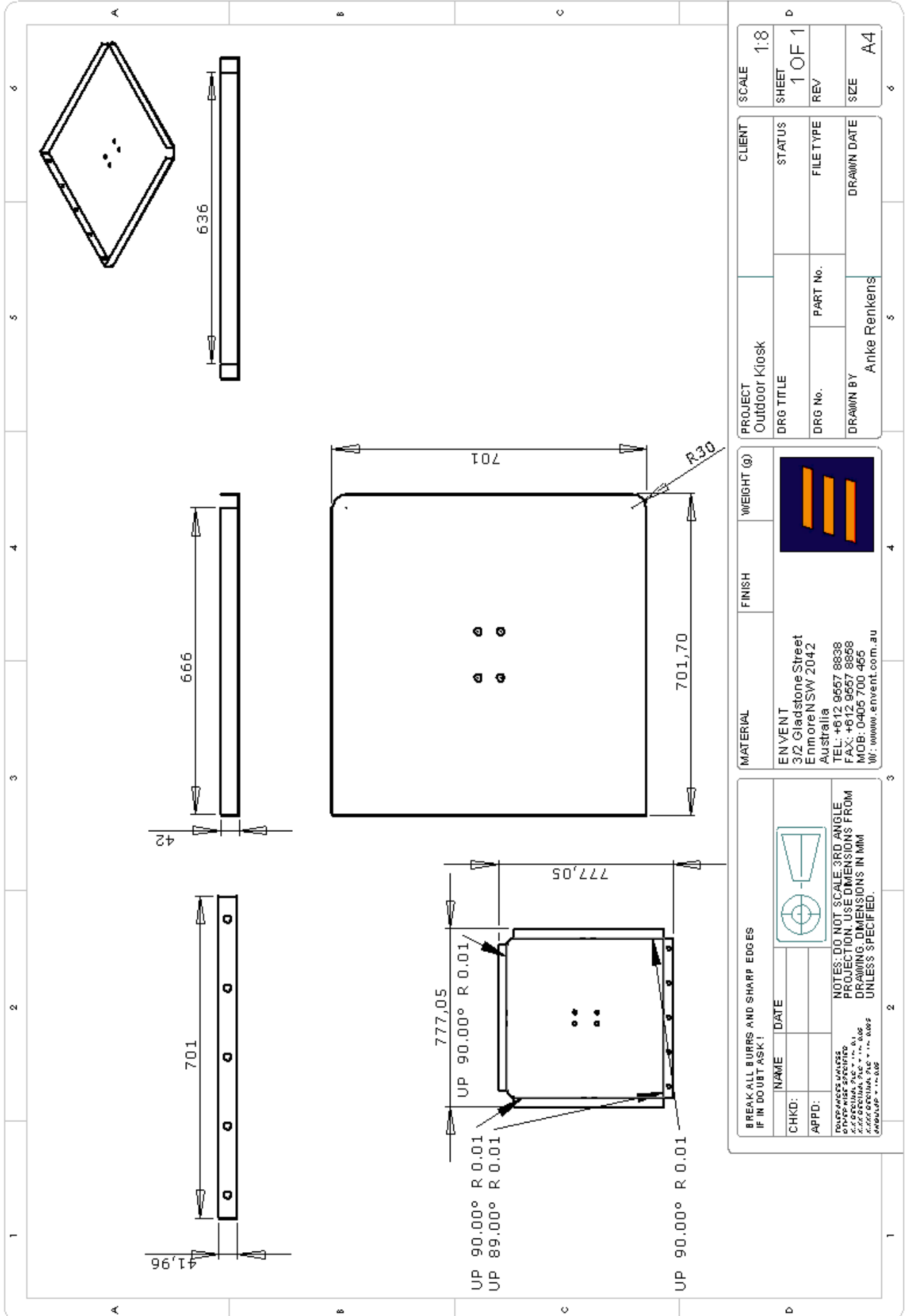


Appendix J | CAD drawings



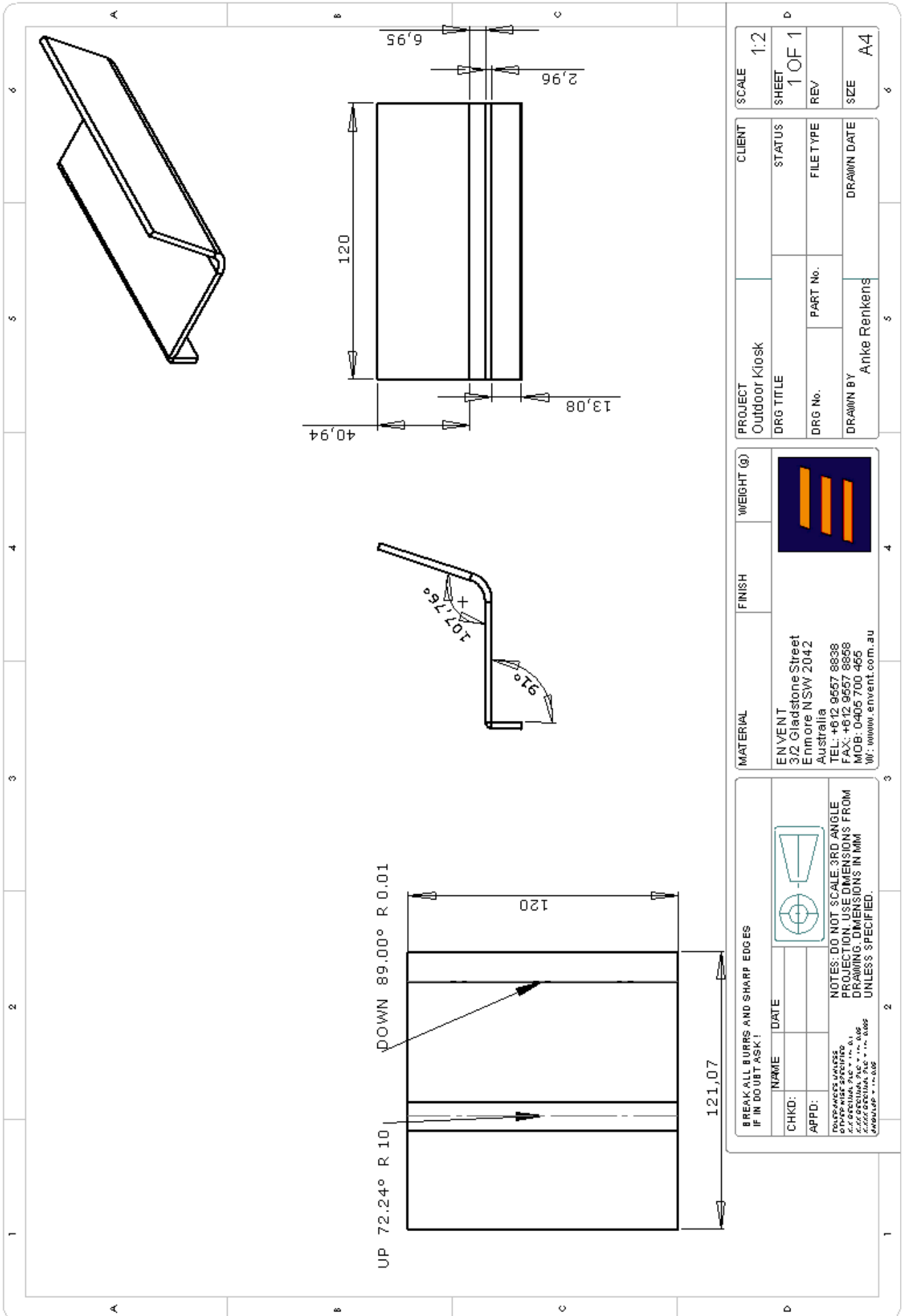
Appendix J | CAD drawings

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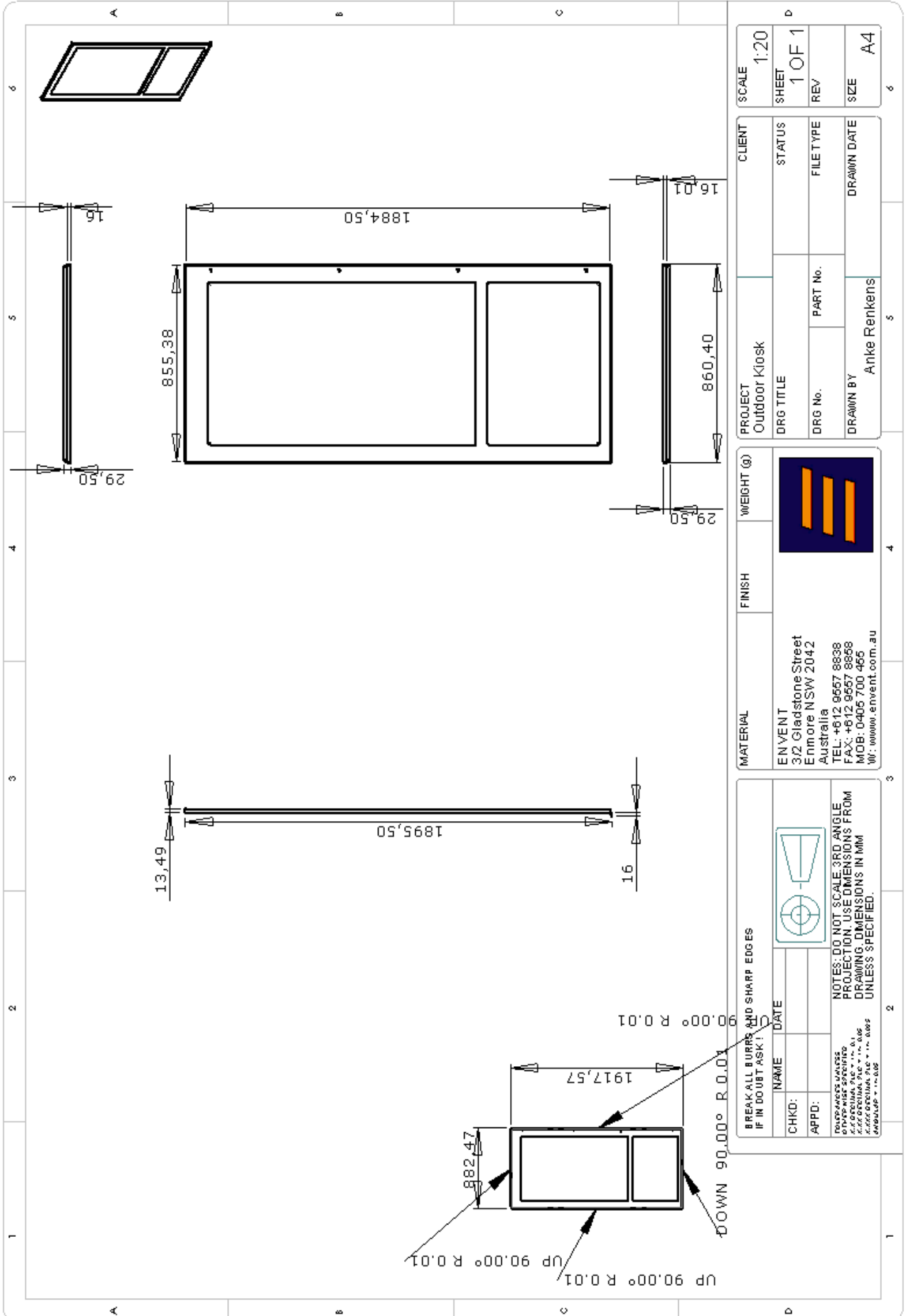
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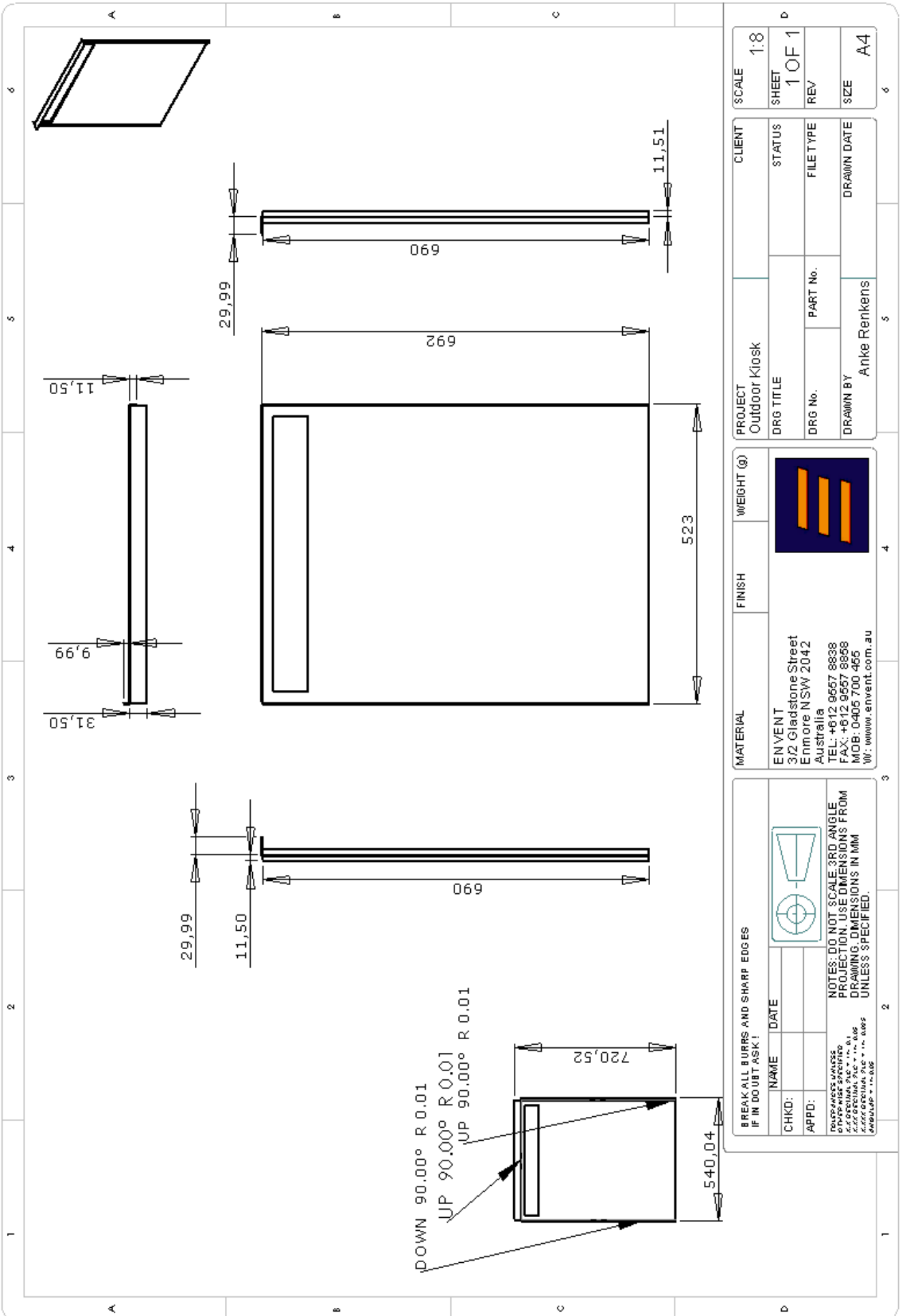
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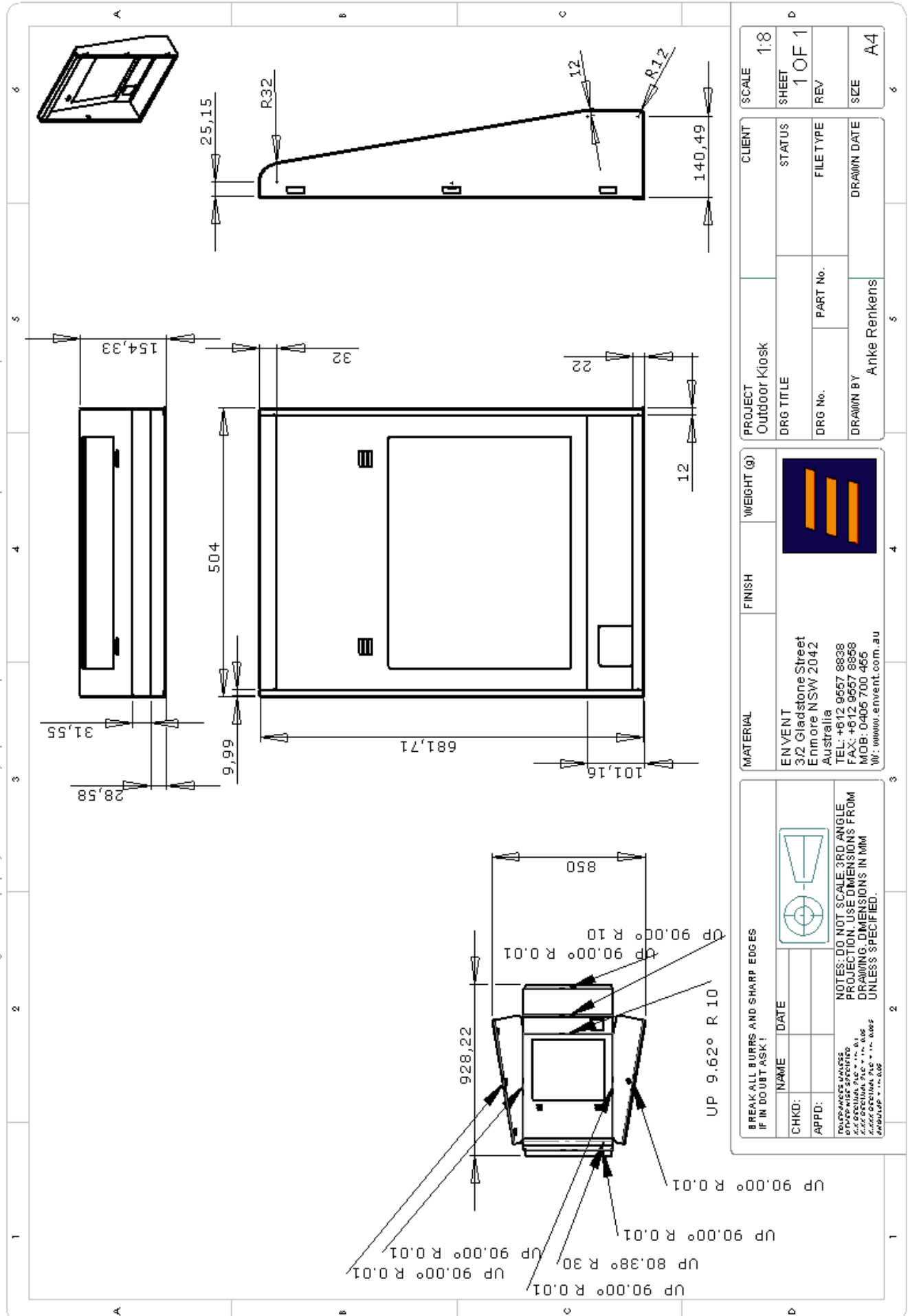
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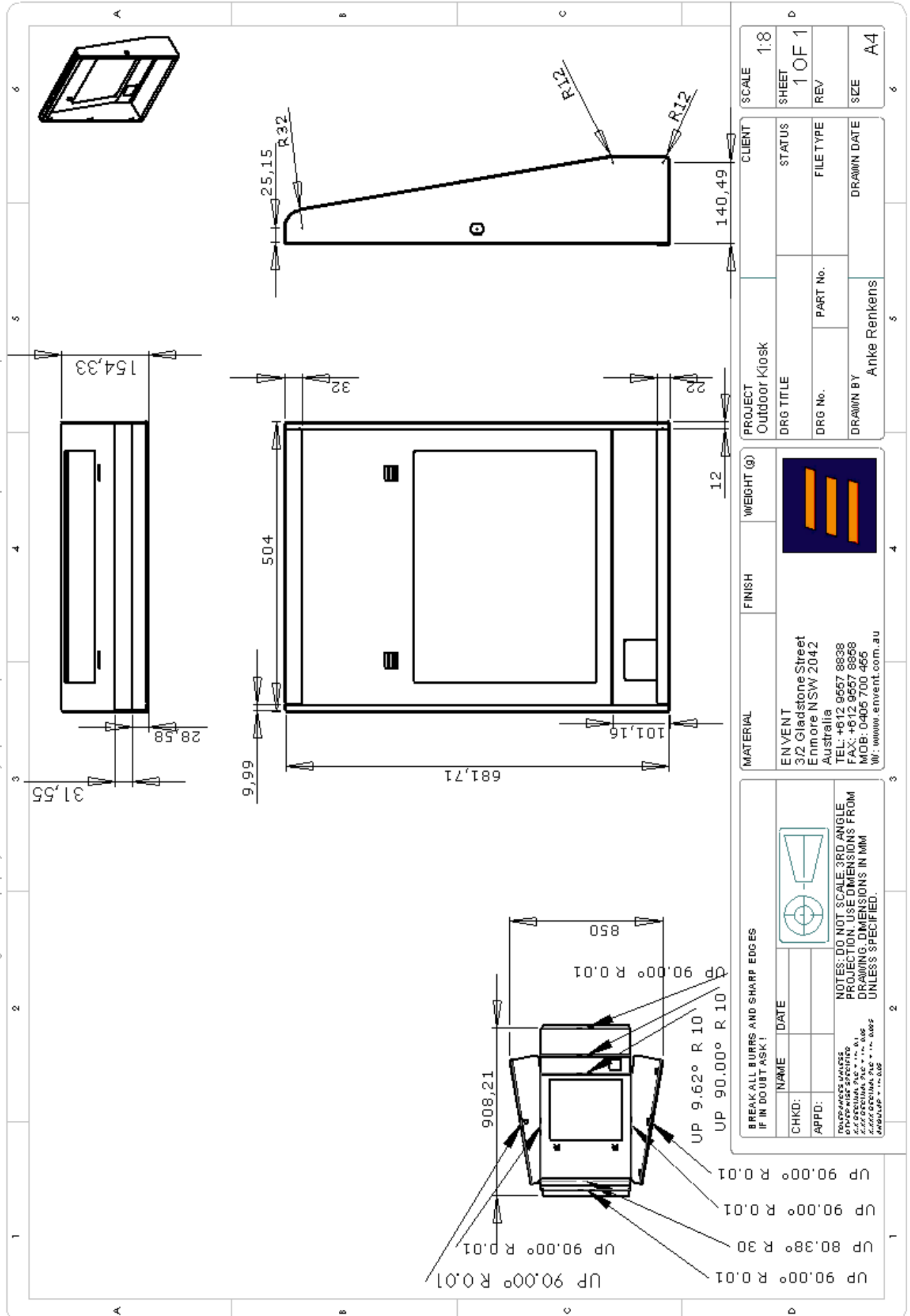
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MATERIAL		FINISH		WEIGHT (g)		CLIENT	
ENVENT 3/2 Gladstone Street Enmore NSW 2042 Australia TEL: +612 9657 8838 FAX: +612 9657 8868 MOB: 0405 700 465 W: www.envent.com.au		PROJECT Outdoor Kiosk		STATUS		SCALE 1:8	
NAME: _____ DATE: _____ CHKD: _____ APPD: _____ <small>FOR COMMENTS PLEASE CONTACT: 2/22 BRIDGEMAN ST • 1500 005 4/400 GARDNER ST • 1500 005</small>		DRG TITLE DRG No. _____ PART No. _____ DRAWN BY Anke Renkens		FILE TYPE DRAWN DATE		SHEET 1 OF 1	
NOTES: DO NOT SCALE 3RD ANGLE PROJECTION. USE DIMENSIONS FROM DRAWING. DIMENSIONS IN MM UNLESS SPECIFIED.		BREAK ALL BURRS AND SHARP EDGES IF IN DOUBT ASK!		SIZE A4		REV	

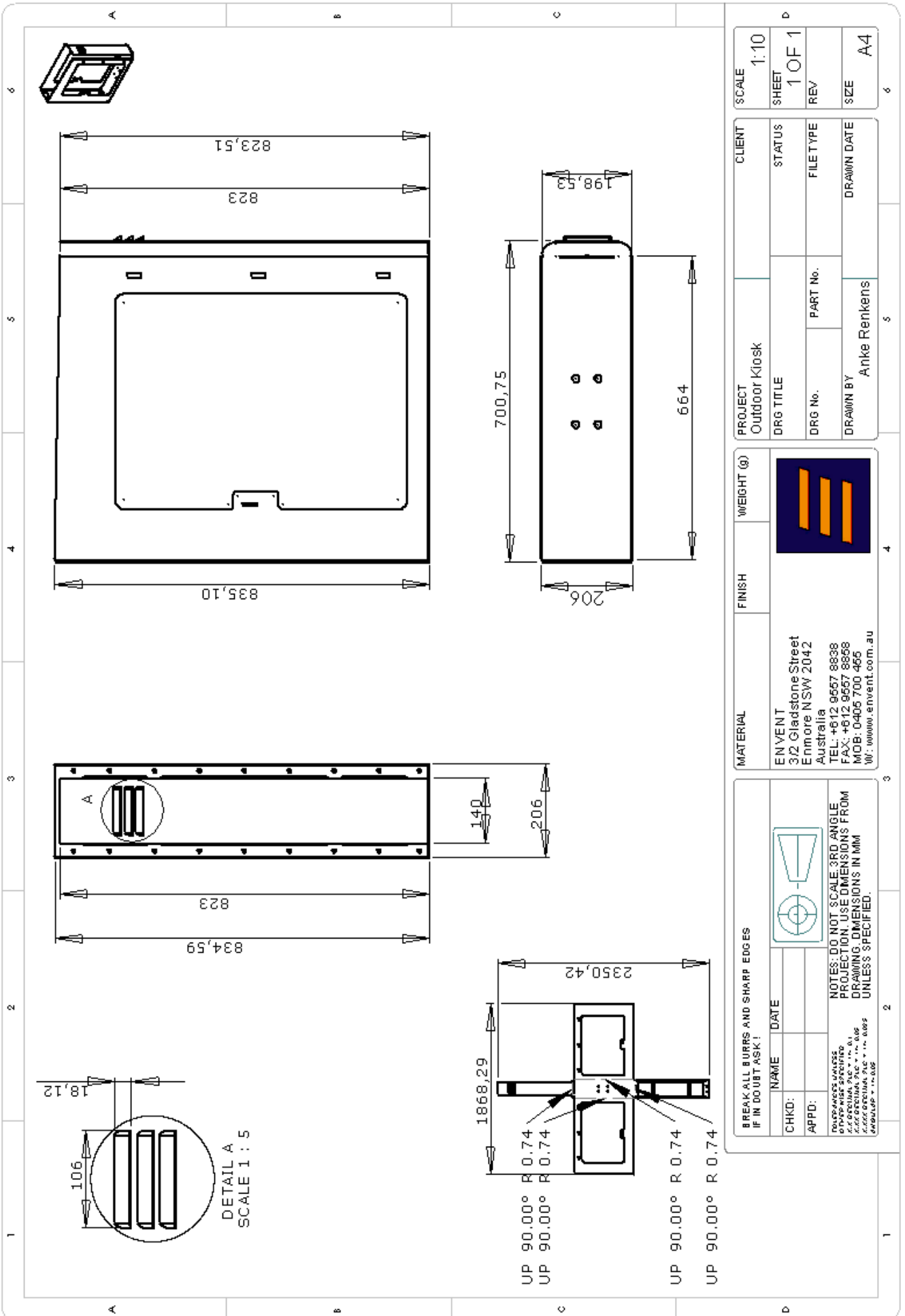
Appendix J | CAD drawings

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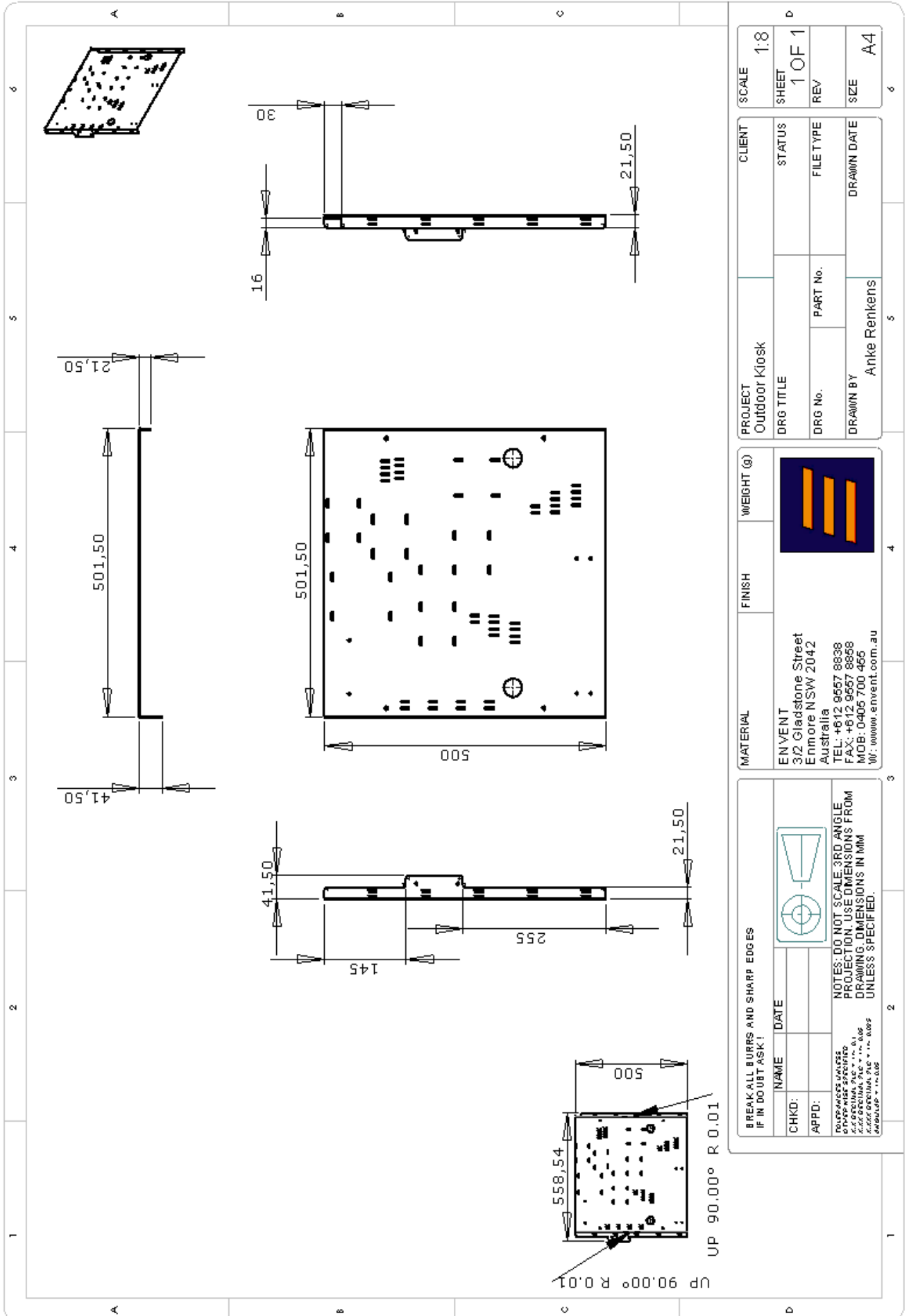
Appendix J | CAD drawings

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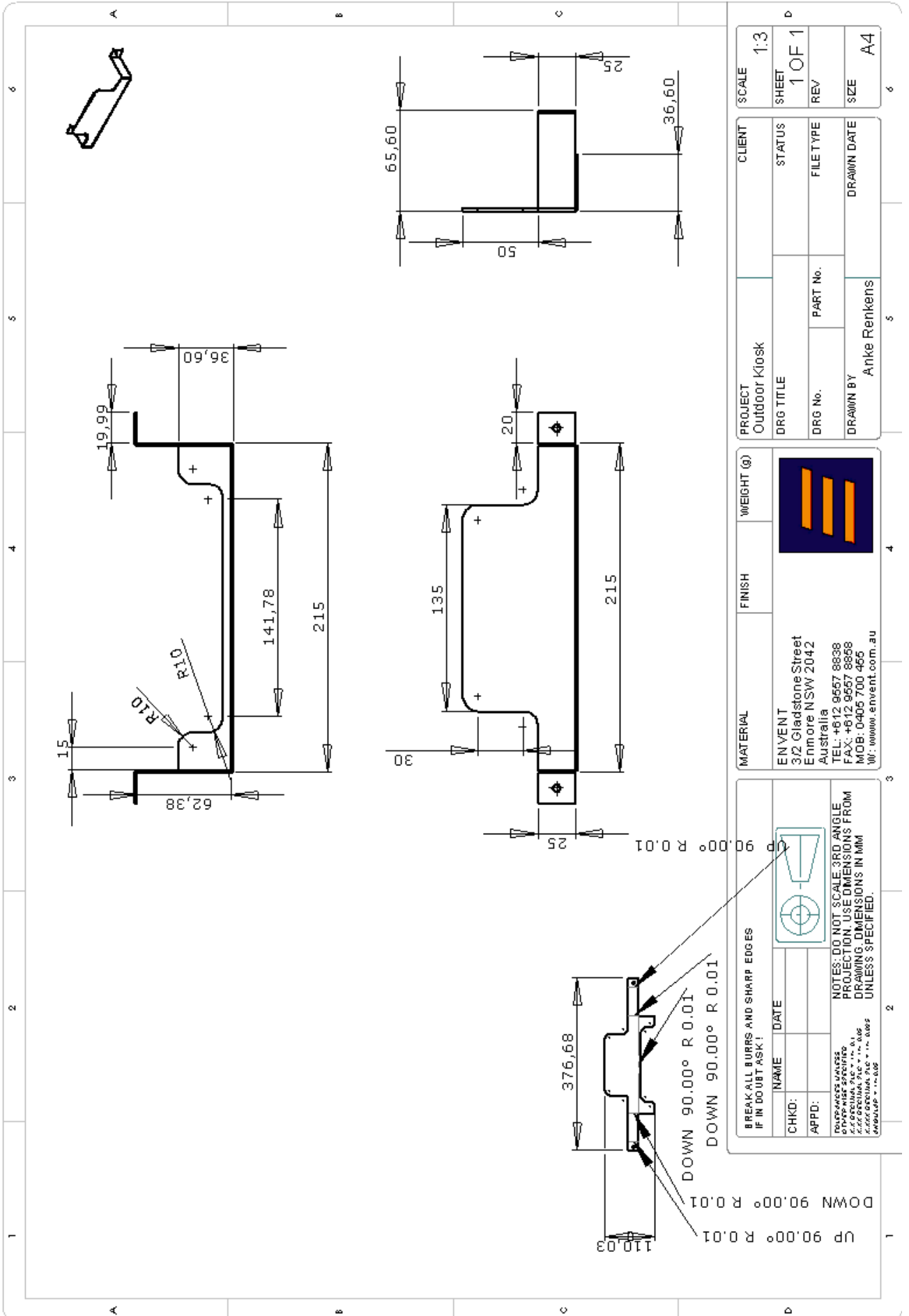
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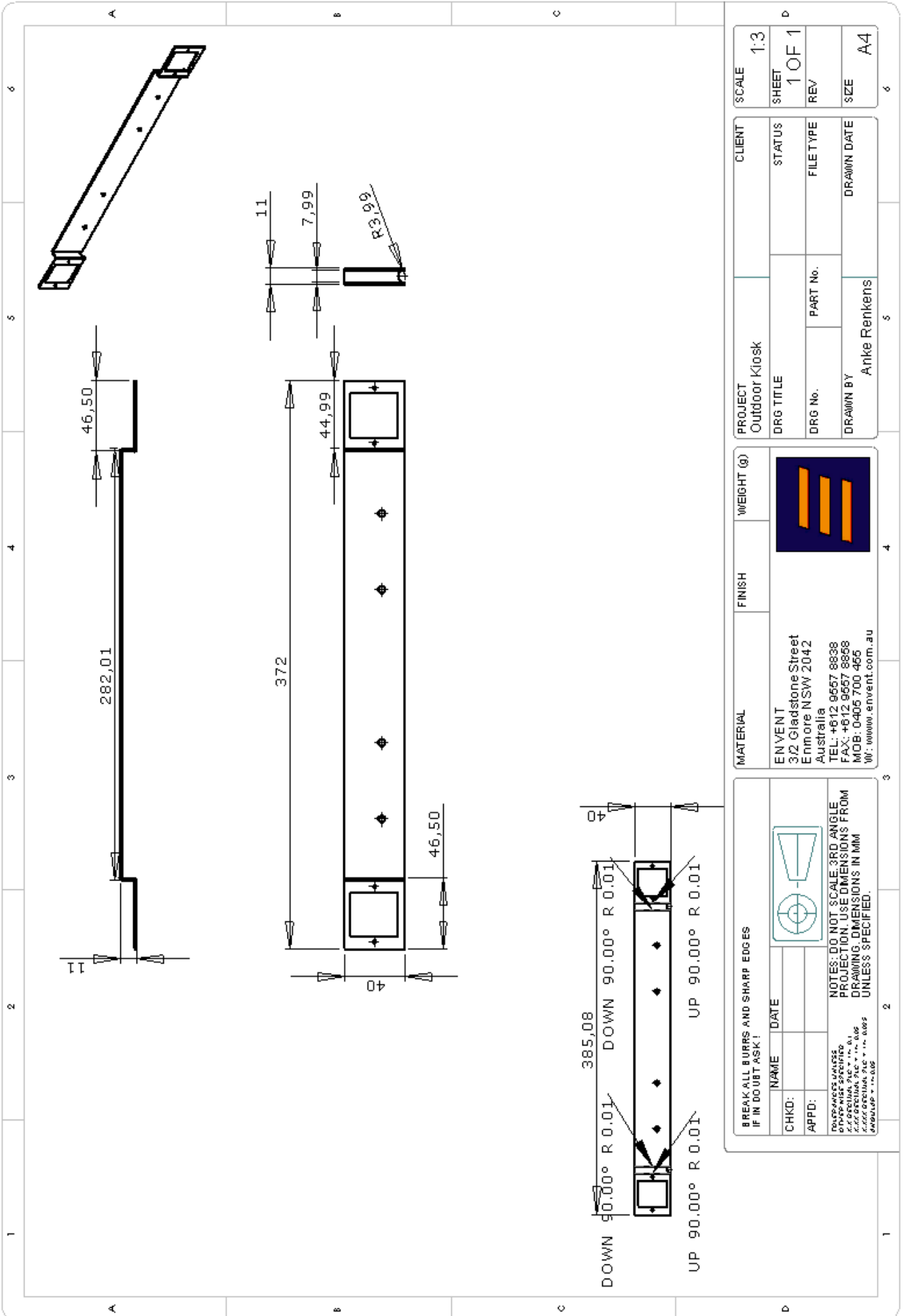
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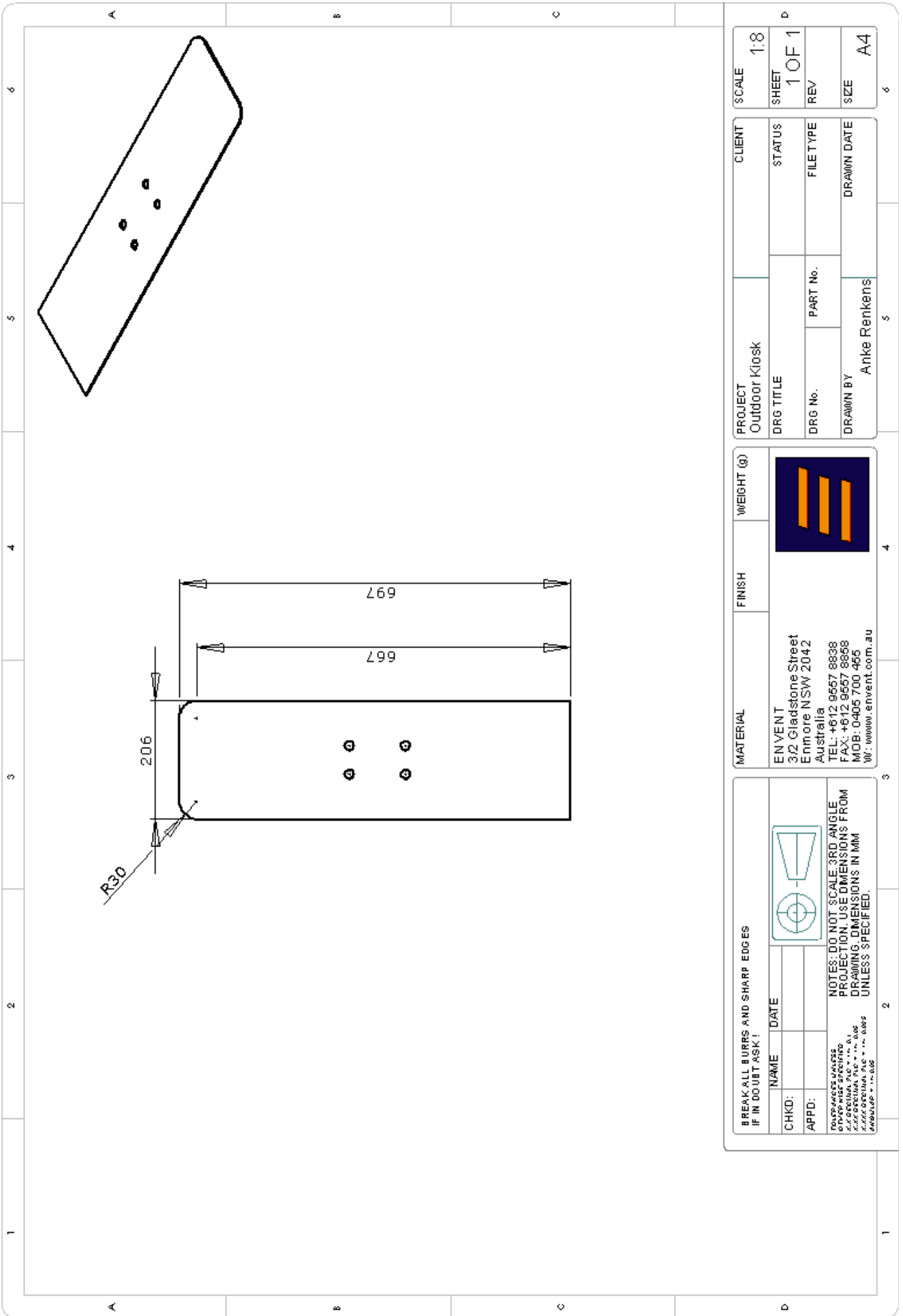
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BREAK ALL BURRS AND SHARP EDGES IF IN DOUBT ASK!				WEIGHT (g)		CLIENT		SCALE	
NAME _____ DATE _____	CHKD: _____ APPD: _____	NOTES: DO NOT SCALE 3RD ANGLE PROJECTION. USE DIMENSIONS FROM DRAWING. DIMENSIONS IN MM UNLESS SPECIFIED.		MATERIAL ENVENT 3/2 Gladstone Street Enmore NSW 2042 Australia TEL: +612 9657 8838 FAX: +612 9657 8868 MOB: 0405 700 465 W: www.envent.com.au		PROJECT Outdoor Kiosk		STATUS _____	
DRG No. _____		PART No. _____		FILE TYPE _____		REV _____		1 OF 1	
DRAWN BY Anke Renkens		DRAWN DATE _____		SIZE A4		SCALE 1:3		SHEET 1 OF 1	

Appendix J | CAD drawings

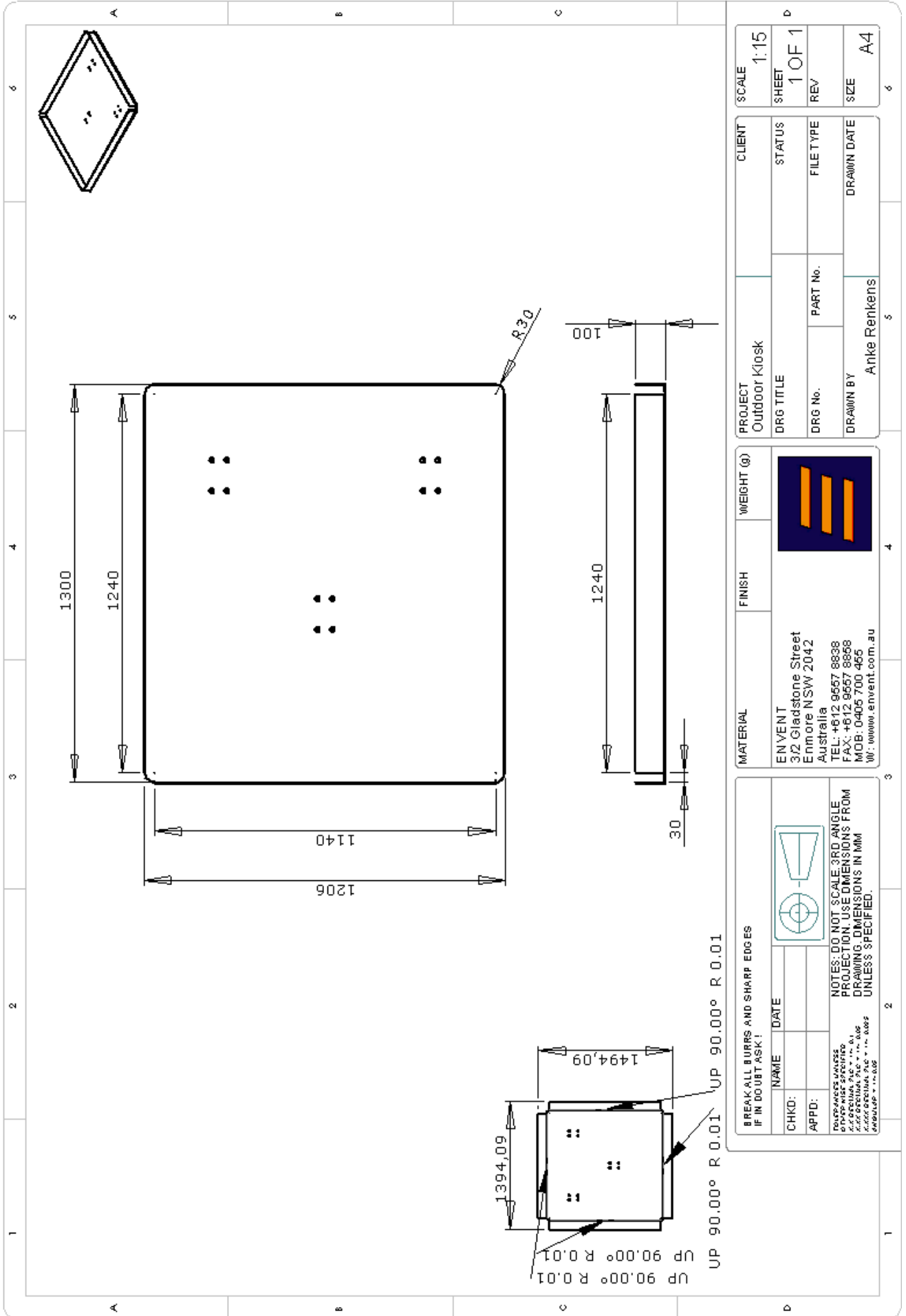
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BREAK ALL BURRS AND SHARP EDGES IF IN DOUBT ASK!		WEIGHT (g)		CLIENT		SCALE	
NAME _____ DATE _____		ENVENT 3/2 Gladstone Street Enmore NSW 2042 Australia TEL: +612 9657 8838 FAX: +612 9657 8868 MOB: 0405 700 465 W: www.envent.com.au	Outdoor Kiosk	STATUS	1:8	SHEET 1 OF 1	REV
CHKD: _____ APPD: _____	NOTES: DO NOT SCALE 3RD ANGLE PROJECTION. USE DIMENSIONS FROM DRAWING. DIMENSIONS IN MM UNLESS SPECIFIED.	DRG No.	PART No.	DRAWN DATE	DRAWN BY Anke Renkens	SIZE A4	SIZE A4

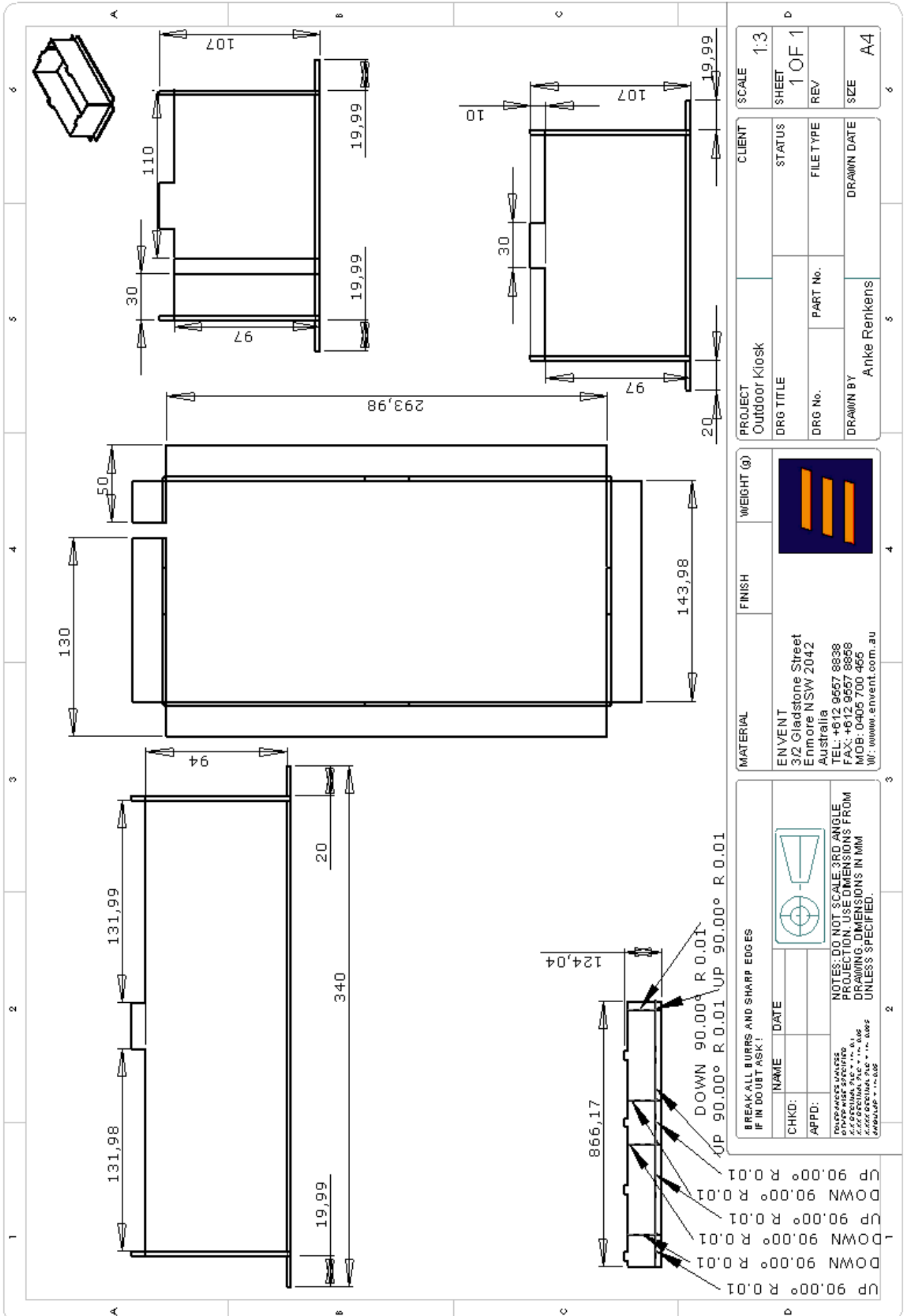
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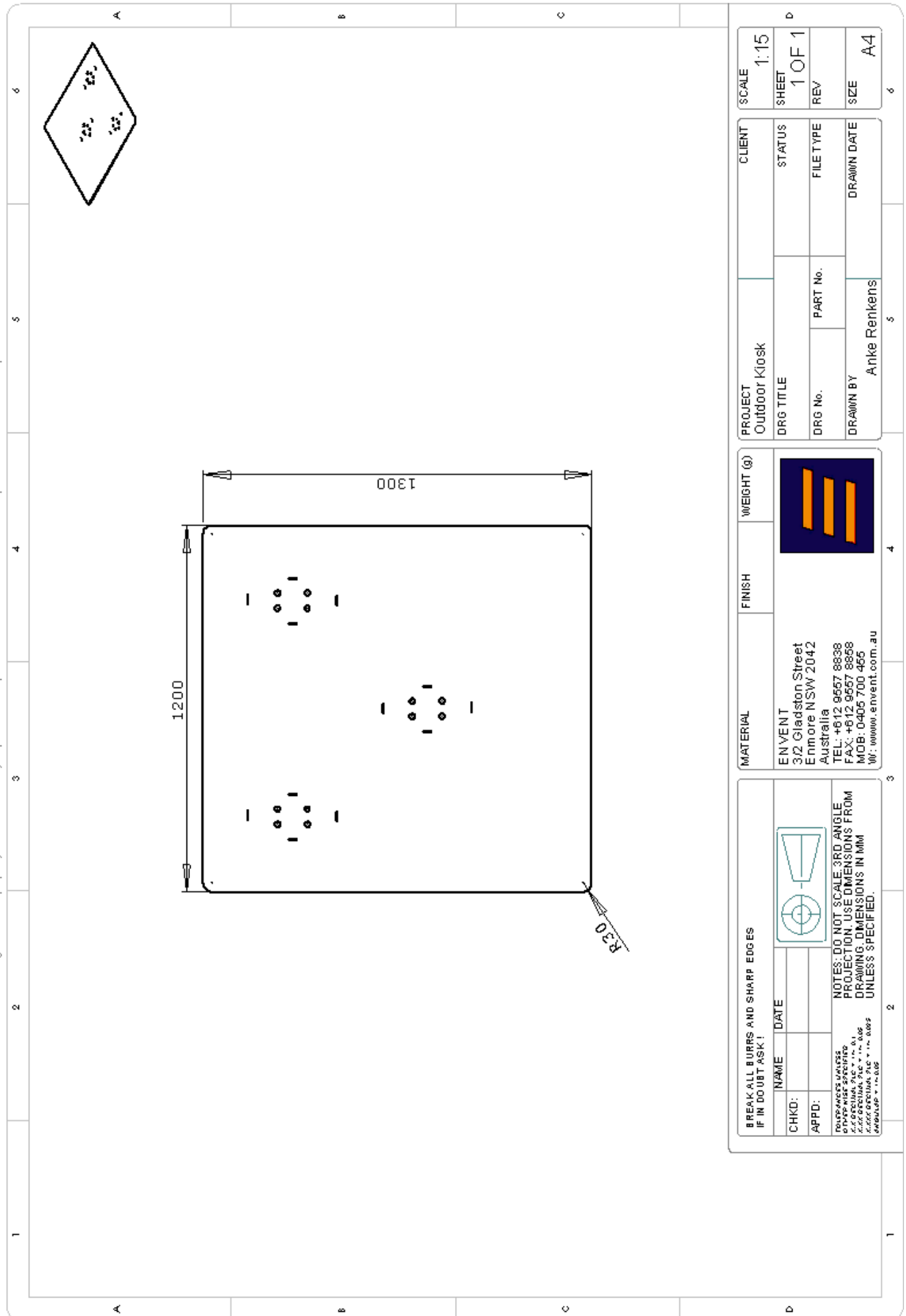
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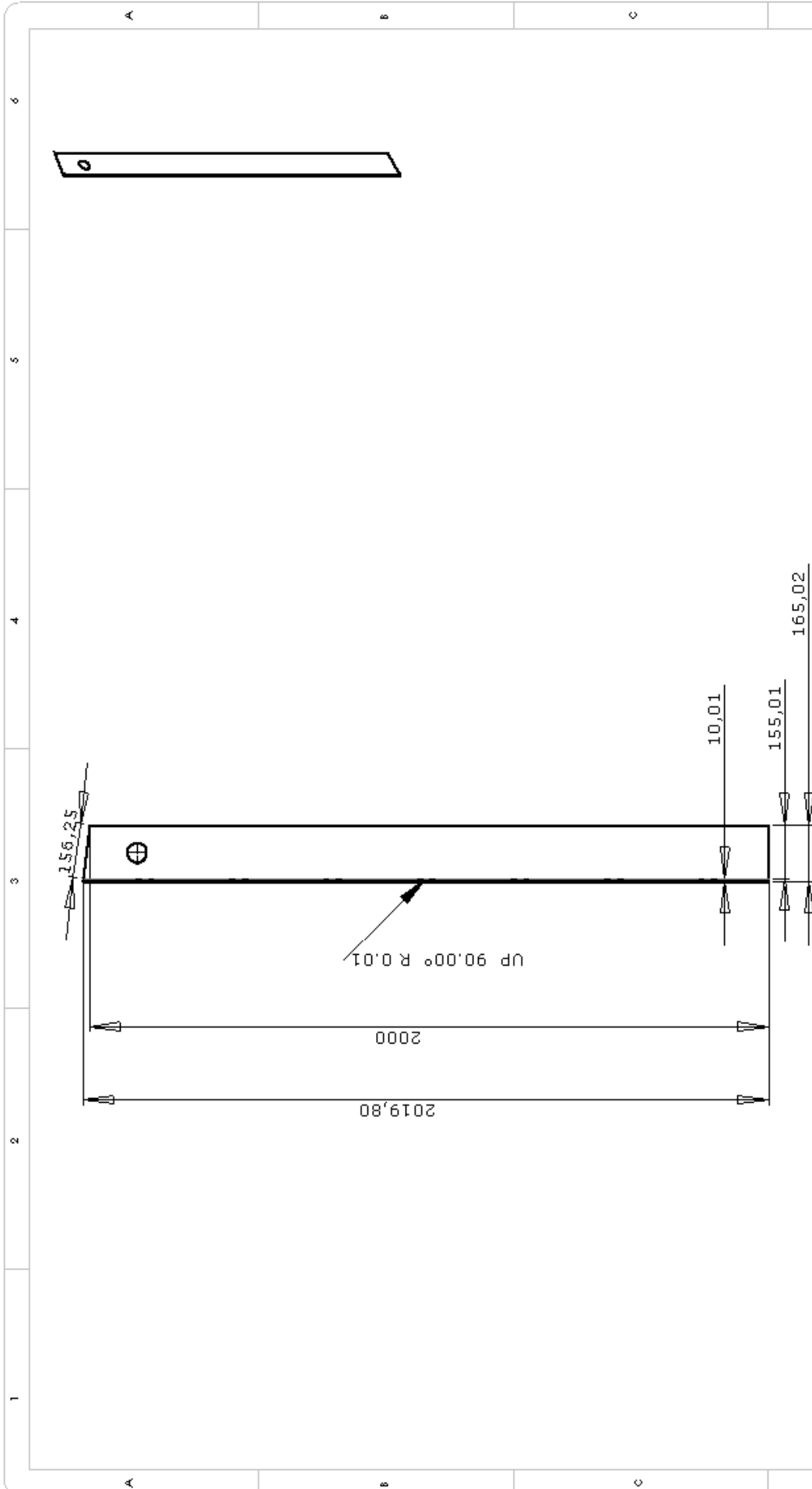
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BREAK ALL BURRS AND SHARP EDGES IF IN DOUBT ASK!	
NAME	DATE
CHKD:	
APPD:	
NOTES: DO NOT SCALE. 3RD ANGLE PROJECTION. USE DIMENSIONS FROM DRAWING. DIMENSIONS IN MM UNLESS SPECIFIED.	

MATERIAL

ENVENT
 3/2 Gladstone Street
 Enmore NSW 2042
 Australia
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 FAX: +612 9557 8858
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FINISH

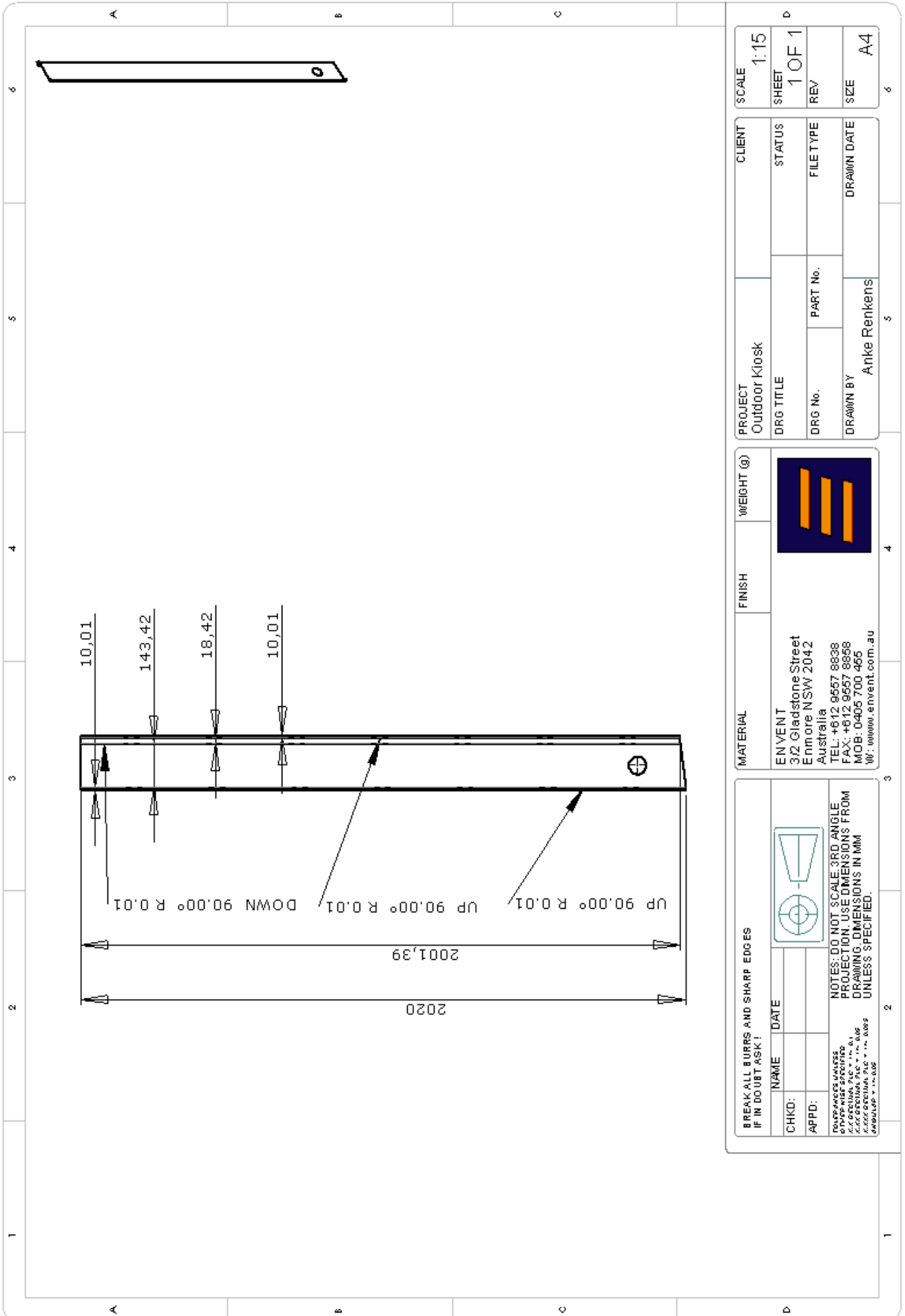
WEIGHT (g)

PROJECT Outdoor Kiosk		CLIENT	
DRG TITLE		STATUS	
DRG No.	PART No.	FILE TYPE	
DRAWN BY Anke Renkens		DRAWN DATE	

SCALE	1:15
SHEET	1 OF 1
REV	
SIZE	A4

Appendix J | CAD drawings

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