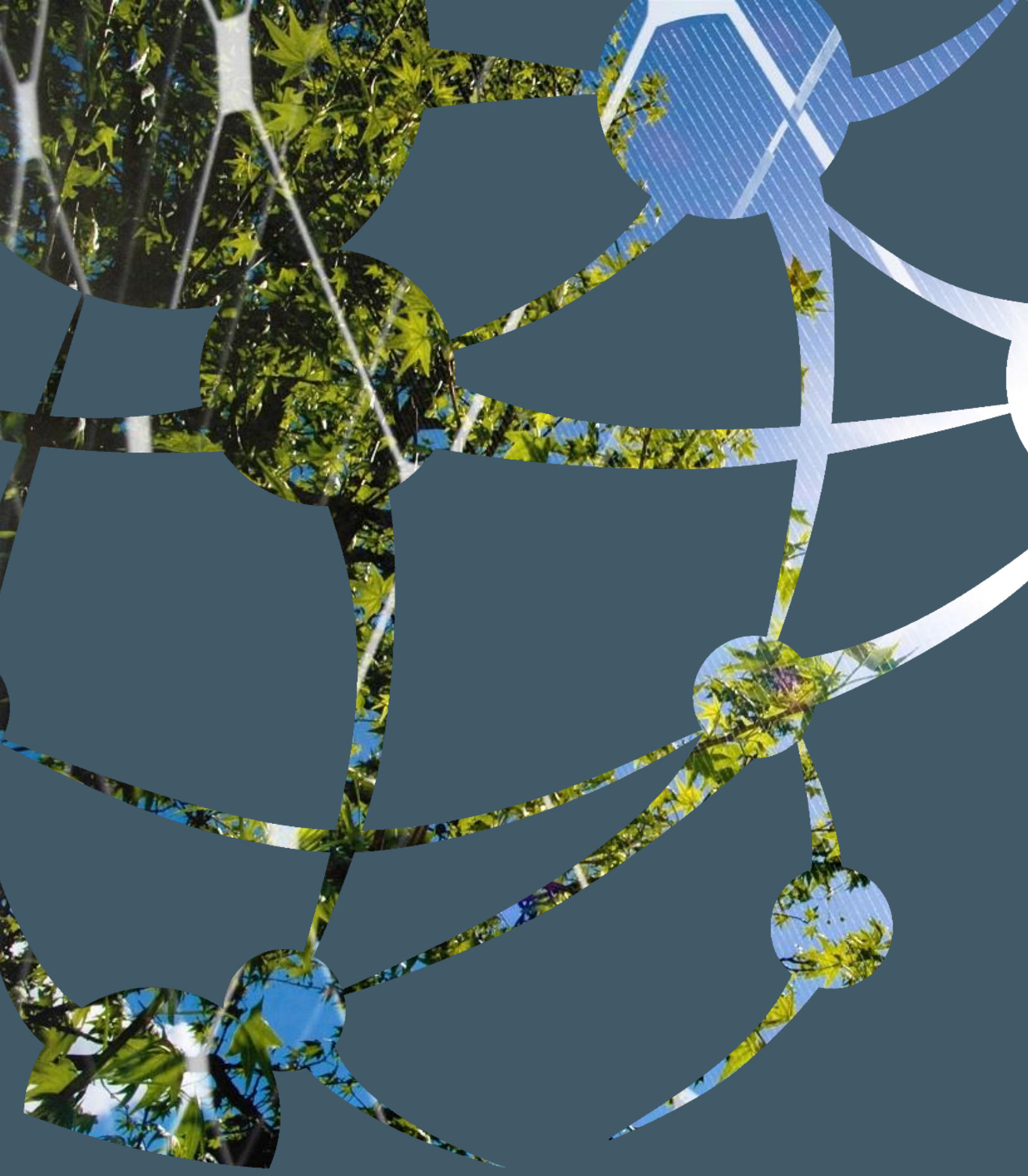
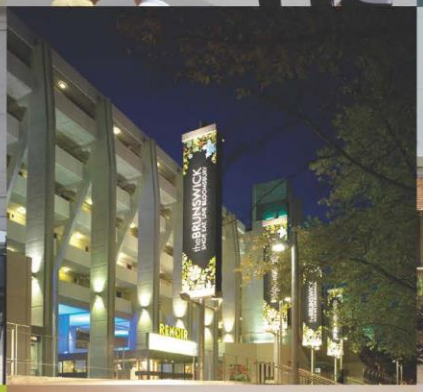


ATR HOTEL EXTENSION
BUILDING SERVICES STRATEGY
JULY 2015

elementa
Member of Integral Group



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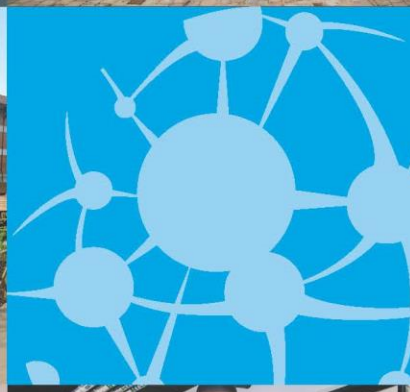


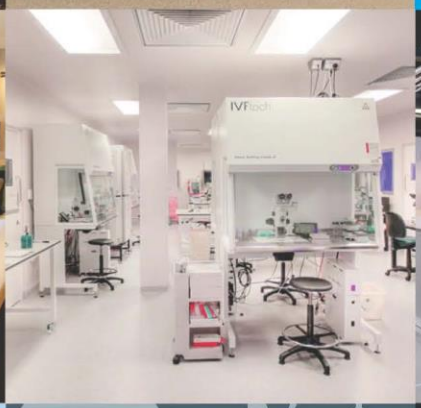
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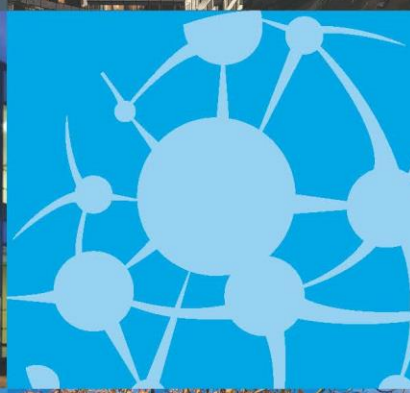



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DOCUMENT CONTROL

Issue	Description	Date	Prepared By	Signed Off
-	Planning Issue	03.07.15	DG	DG
1	Comments incorporated	10.07.15	DG	DG

1 INTRODUCTION

Elementa consulting have been appointed to undertake the building services design for ATR Hotel Extension. The following document seeks to outline the proposed solutions to the building services to be designed for the extension. The extension to the hotel will be themed and this will be reflected in the MEP services strategy.

2 MECHANICAL SERVICES PROPOSAL

2.1 VENTILATION

Ventilation to the bedroom shall be provided and specified by the constant volume extract volume to the guest room by trickle vents incorporated in the window frames of each room. Air shall be extracted from the bathrooms via connecting to a common extract fan at roof level.

The kitchen will have a roof extract fan. Kitchen canopies will be specified by the kitchen consultant, make up air will be via a duct fitted with a box filter and an inline heater (either DX or VRF).

Fire damper systems will be located in vertical riser entries. Kitchen extract ducts shall be fire rated within risers & ceiling voids.

All ventilation systems will have sound alterations to meet integral noise criteria, external noise criteria is required by the external acoustic consultant and to meet the crosstalk attenuation objectives.

Ventilation to front of house areas shall be provided via local mechanical ventilation with heat recovery (MVHR). The MVHR units will be sized to serve the occupancy levels for the areas which they are located.

3 HEATING /COOLING

HEATING/COOLING

The building will utilise a heat recovery VRF system to provide both heating and cooling to the guestroom areas. VRF technology has been demonstrated to be an energy efficient option for use within modern buildings. The additional presence of heat recovery within the system reduces the load on the outdoor compressor units and therefore reduces energy consumption of the system.

The VRF system is beneficial due to the way it operates and “moves” heat around the building. The system will move excess heat from one area and introduce it to another area where heating is required, instead of dumping the heat atmosphere.

We have found that in certain instances the heat recovery air source VRF system actually gives a much better carbon footprint per annum than that of ground source heat pumps.

3.1 GAS INSTALLATIONS

The main meter will be contained within an external GRP gas meter enclosure.

The following areas shall be provided with a metered natural gas supply.

- Gas fired water heaters in the ground floor plantroom
- Kitchen

The gas installation shall be in accordance with the current building and Gas regulations.

3.2 FLUE INSTALLATIONS

The gas fired water heaters in the plantroom, shall be fitted with dedicated flues which will pass through the external plantroom wall and turn up all to discharge at a safe height.

3.3 FIREMANS SMOKE CONTROL SWITCHES

Provide Fireman's Switch for HVAC plant operated automatic position to allow operation in normal occupation mode or in fire alarm mode shut down all plant.
Off position shuts down all HVAC equipment & Extract position manually activates all extract fans.

4 ELECTRICAL SERVICES

GENERAL - ELECTRICAL DESIGN CRITERIA

4.1 ELECTRICAL SERVICES PROPOSAL

The existing site electrical distribution will be modified and upgraded to supply the new hotel and will continue to be supplied from the Electricity Authority network with separate metering to the hotel extension.

The telecommunication and data services will be provided via fibre optic links from the existing hotel networks to serve the Hotel extension.

The Hotel Data, Telecommunications and operational systems will be developed by a specialist to integrate the systems for the existing and hotel extension.

4.2 MAIN AND SUB-DISTRIBUTION

The main LV switchboard will be installed within the ground floor electrical switchroom and all sub main circuits will be protected by Moulded Case Circuit Breakers (MCCB's).

There will be one electrical risers within the building, rising from ground floor to the upper floors of the building. The proposed riser locations and typical sizes are detailed on the drawings within Appendix A.

An MCCB panel board will be installed adjacent the riser to supply the room consumer units and a general lighting and small power circuits within the circulation areas

The location of the consumer unit will be located within a suitable sized central room for all consumer units for the bedrooms. The consumer units will require to be labelled adequately to ensure the room which it supplies is clearly shown.

In order to serve the external amenity lighting, a distribution board will be provided supplied direct from the main LV switchboard, located within the LV switch room.

In order to comply with the requirements of Part L of the Building Regulations, a kWh check meter will be incorporated within the LV switchboard to meter all sub main to which a load of 50kW or more is connected.

4.3 LIGHTING

The lighting installations play an important part in the sense of wellbeing and comfort. The lighting will be designed to create a calm and welcoming atmosphere. A sustainable energy efficient lighting schemes will be a key part of the design process where automatic controls will be used, with local controls to minimise wastage and utilise the daylight as much as possible.

The lighting installations will be in accordance with the following:

- SLL Lighting Handbook 2012
- CIBSE Lighting Guide 07 “Internal Lighting”
- BS8026: Part 2

To keep the running cost of the building to a minimum, the artificial illumination will generally be by energy efficient and high frequency lamps from the following lamps sources:

- LED
- Compact Fluorescent

4.4 EMERGENCY LIGHTING

Throughout the parts of the building covered by the works, the Contractor shall supply and install emergency lighting systems to comply with BS 5266.

Emergency lighting shall consist of a mixture of sustained, maintained and non-maintained units either integral to luminaires or using remote battery inverter packs. All emergency lighting shall be capable of providing 3 hours sustained duration with their associated charger units able to suitably recharge within 24 hours. Where conversion kits are specified for luminaires they shall be factory fitted.

4.5 FIRE ALARM

A new analogue addressable category L1 fire alarm detection system will be provided to cover all areas of the new development in accordance with BS 5839

The scheme will support the building fire strategy requirement and will incorporate alert and management features to suit fire operational ‘cause and effect’ requirements to be developed during the next stage including the following:

- Smoke/heat detectors with sounder bases
- Separate sounders where necessary
- Visual indication of fire alarm in all areas to comply with DDA requirements
- Break glass contacts at all exits from the building
- Magnetic door releases on selected corridor doors
- Interface units for lifts, access controlled doors, gas shut-off, plant shut down etc.
- Link to the existing hotel fire alarm system.

The system shall be microprocessor based multi loop digital addressable.

4.6 DISABLED REFUGE

A dedicated disabled refuge alarm system will be provided throughout building, within all dedicated disabled refuge areas in accordance with BS 5839 and all British and European standards.

The system shall be fully monitored.

The main disabled refuge alarm panel will be located at the main reception within the existing hotel.

The main disabled refuge panel will be provided with a two-way communication unit with visual LED identification and engraved labelling for each refuge unit.

Each disabled refuge alarm unit been separately identified on the main panel via a dedicated LED lamp and engraved labelling for each disable refuge alarm.

4.7 DISTRESS ALARM SYSTEMS

A disabled distress alarm system will be provided to all disabled bedrooms, associated bathrooms and public disabled toilets.

The distress alarm system will be fully addressable; the control panel will be located within the main back office

4.8 CCTV

A CCTV system infrastructure will be provided for monitoring entrances and some outdoor locations. Cameras will be located throughout the development final quantities and locations to be agreed during the next design stage.

4.9 ACCESS CONTROL

A building access control system will be provided to control access to back of house and staff only circulation areas and to restrict access between the ground and upper floors within the building.

4.10 TELECOMMUNICATION AND DATA DISTRIBUTION

Telecommunication and Data will be provided as an extension of the existing hotel network.

The new voice/data system will be provided in accordance with the Clients specification comprising of patch panels at each floor level receiving CAT6 cables from RJ45 sockets in guest rooms and ancillary areas. The patch panels will incorporate Ethernet to Fibre switches providing data transfer to fibre optic backbone cables running to the Communications room racks.

4.11 TV AND AV SYSTEMS

A new digital TV and satellite system will be provided for the Hotel.

It is envisaged the system will be suitable for both Digital HDTV and analogue distribution.

Dishes and antenna will be connected to head end equipment comprising of satellite frequency multiplexers, encoders, and matrix switches and media conversion modules. The head end equipment will be mounted within the Communications room.

4.12 LIGHTNING PROTECTION

A lightning protection system will be provided in accordance with BS EN 62305.

The system will incorporate the following as a minimum:

- Interconnect system to new aerial conductors & down conductors
- Bonding of external rooftop plant and PV array to local lightning protective conductors or structural steel
- Bonding lift equipment, guides etc. in accordance with the recommendations of the lift Installation Specialist
- Bonding satellite, TV and radio antennae systems in accordance with the recommendations of the TV Installation Specialist.

5 PUBLIC HEALTH SERVICES

5.1 ABOVE GROUND FOUL DRAINAGE

5.1.1 PUBLIC HEALTH DESIGN CRITERIA

The Above Ground Soil and Waste system will be designed in compliance with BS EN 12056 Part 2: 2000 Gravity Drainage Systems Inside Buildings. Sanitary Pipework, Layout and Calculation.

The soil and waste system will be designed on the Primary Vented principle as detailed in BS EN 12056 Part 2: 2000 figure 2.

The flow rates will be calculated using the Discharge Unit method – System 3

$Q_{ww} = K \times \sqrt{\sum DU}$
The Frequency Factor K (usage of appliances) will be 0.7

5.2 GENERAL

A new soil, waste and vent installation will be provided to serve the following areas:-

- Hotel
- Restaurant kitchen Areas
- Ground floor toilets

5.3 COLD WATER

Domestic cold water supply to the building shall be via a new metered dedicated storage and booster system located within the plant room. The water shall be suitably treated with electronic/magnetic water conditioner to provide the demise with a wholesome water supply. The variable volume booster pump set shall distribute the water throughout the building.

5.4 HOT WATER

The HWS DHWS temperature in the distribution pipework will be heated by either direct gas fired water heaters, or LTHW calorifires. Separate distribution pipework circuits from the plant room shall be routed at high level ground to serve the kitchen and rise up to serve the guestroom bathrooms above. A common domestic hot water return pump will maintain safe temperature in the HWS pipework.

5.5 PIPED SERVICES GENEARLLY

The hot and cold water services will be designed in accordance with the current applicable legislative, technical and material requirements of:

- Water Supply (Water Fittings) Regulations 1999 and the associated WRAS Water Fittings Directory
- Health and Safety Executive HSG274 Legionnaires' disease Technical Guidance. Parts 1 to 4 The control of legionella bacteria in water systems
- CIBSE TM13 Minimising the Risk of Legionnaires' Disease
- BS EN 806 Parts 1 – 5 Specification for installations inside buildings conveying water for human consumption.
- BS8558 Guide to the design, installation, testing and maintenance of services supplying water for domestic use within buildings and their curtilages – Complementary guidance to BS EN 806, part G of the building regulations.

To minimise the risk of legionella proliferation, the water temperatures in the hot and cold water systems must be maintained at the following:

Cold water temperature – will not exceed 20°C in any part of the system.

Hot water storage temperature – 65°C (not less than 60°C and not greater than 70°C

The centralised Hot water return temperature will not be less than 55°C.

Maximum Hot Water Temperatures at appliances:

Wash basins (general) – 43°C
Wash basins (disabled) – 41°C
Max hot water outlet Temperature for showers – 41°C
Sinks Kitchens & Staff Tea Rooms – not greater than 60 °C with a (notice stating Very Hot Water to be clearly visible as a hazard warning).

BUILDING SERVICES & ENVIRONMENTAL

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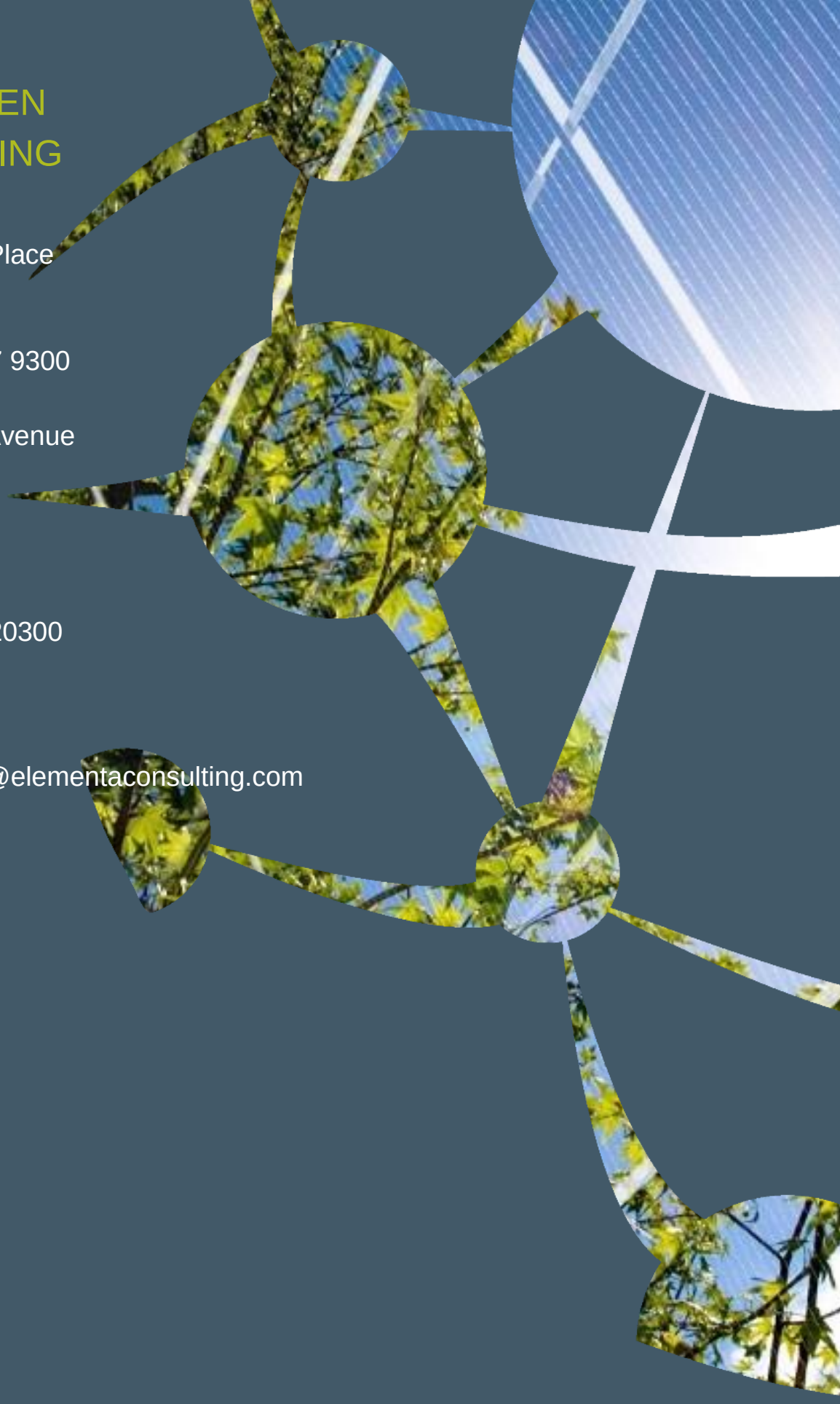

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