

**EQUIPMENT LIST**

- (WC)** AMERICAN STANDARD MODEL 2467-100 CADET FLOWSE RIGHT HEIGHT ELONGATED PRESSURE-ASSISTED FLOOR MOUNTED FLUSH TANK WATER CLOSET SUPPLIED COMPLETE WITH VITREOUS CHINA BOWL AND TANK, ELONGATED BOWL, EVERLEAN SURFACE FINISH, 119mm BOWL RIM HEIGHT, PRESSURE ASSISTED SIPHON, ET FLUSH ACTION, FULLY GLAZED 54mm TRAPWAY, 254x305 WATER SURFACE AREA, CLOSE COUPLED FLUSHMETER TANK, METAL CHROME TRIP LEVEL, TWO BOLT CAPS, 4.2 LPT (1.1 GPM), FLEX SUPPLY LINE, ANGLE STOP AND OPEN FRONT SEAT WITHOUT COVER. COLOUR: WHITE.
- (L1)** AMERICAN STANDARD LUCERNE MODEL 0355.012 VITREOUS CHINA WALL HUNG SINK SUPPLIED COMPLETE WALL HANGER, OPEN GRID STRAINER, LAV RISER, ESCUTCHEON PLATE, P-TRAP WITH CLEANOUT, AND DELTA MODEL 22C101 LAVATORY FAUCET SUPPLIED WITH CAST BRASS CONSTRUCTION WITH POLISHED CHROME PLATED FINISH, SINGLE CONTROL LEVER HANDLE WITH 102mm CENTERSET, CERAMIC CARTRIDGE WITH ROTATIONAL LIMIT STOP, METAL HOLD DOWN PACKAGE, VANDAL RESISTANT 5.7 L/MIN (1.5 GPM) OUTLET, FLEX SUPPLY LINES AND ANGLE STOPS.
- (EW)** BRADLEY CORPORATION MODEL S19224PT WALL MOUNTED HALO EYEWASH STATION SUPPLIED COMPLETE WITH YELLOW IMPACT RESISTANT PLASTIC BOWL WITH INTEGRAL STRAINER, TYPE 304 STAINLESS STEEL HIGHLY VISIBLE PUSH HANDLE, PERFORATED ABS PLASTIC SPRAYHEAD WITH PROTECTIVE SPRAYHEAD COVER, HEAVY GAUGE SAND CAST ALUMINUM WALL BRACKET WITH BRADTECT SAFETY YELLOW COATING, 12mm NPT TEMPERED WATER CONNECTION, STAY OPEN 316 STAINLESS STEEL BALL VALVE, 32mm DRAIN FITTING AND TAILPIECE, P-TRAP AND BRADLEY CORPORATION MODEL S19-2000-RE EMERGENCY FIXTURE THERMOSTATIC MIXING VALVE SUPPLIED COMPLETE WITH ADJUSTABLE SET POINT, BUILT-IN COLD WATER BY-PASS, LIQUID FILLED DIAL THERMOMETER, 12mm NPT INLETS WITH CHECK STOPS, 12mm MPT OUTLET AND RECESSED WHITE ENAMEL CABINET WITH CYLINDER LOCK
- (WO)** OATEY MODEL 38535 QUADRO WASHING MACHINE OUTLET BOX SUPPLIED COMPLETE WITH HIGH IMPACT RESISTANT POLYSTYRENE BOX AND COVER PLATE, SINGLE LEVER BALL VALVE, 12mm COPPER HOT/COLD SWEAT CONNECTIONS, 19mm WASHER HOSE CONNECTIONS, 50mm OPENING FOR DRAIN HOSE. COLOUR TO BE WHITE.
- (TSP)** PRECISION PLUMBING MODEL PT-1320-4 PRIME-TIME TRAP PRIMING ASSEMBLY SUPPLIED COMPLETE WITH 16ga. FLUSH MOUNTED CABINET, STAINLESS STEEL DOOR ACCESS DOOR WITH RING PULL AND SCREW DRIVER ACCESS DOOR LATCH, ANTI-SIPHON ATMOSPHERIC VACUUM BREAKER, FIRE-SET 24 HOUR ADJUSTABLE TIMER, MANUAL OVERRIDE SWITCH, 120V SOLENOID VALVE, SINGLE POINT POWER CONNECTION, FOUR OPENING CALIBRATED MANIFOLD, 19mm FNPT CONNECTION WITH ISOLATION VALVE, 4-16mm OUTLET COMPRESSION FITTINGS FOR 12mm TSP LINE AND 120V POWER.
- (HB)** MIFAB MHY-20 NON-FREEZE SELF-DRAINING WALL HYDRANT SUPPLIED COMPLETE WITH VACUUM BREAKER, 19mm INLET AND HOSE CONNECTIONS. FIELD VERIFY WALL THICKNESS PRIOR TO ORDERING.
- WH-1 GAS FIRED WATER HEATER** NAVEN MODEL NPE-240A GAS FIRED TANKLESS CONDENSING WALL MOUNTED WATER HEATER SUPPLIED COMPLETE WITH STEEL CASE, DUAL STAINLESS STEEL HEAT EXCHANGERS, ECO PREMIXED BURNER, NEGATIVE PRESSURE GAS VALVE, CONDENSATE COLLECTOR, TEMPERATURE LOCKOUT, INTERNAL CIRCULATION PUMP AND BUFFER TANK, LEAD FREE PLUMB EASY VALVE SET, PRESSURE RELIEF VALVE, INTERNAL CIRCUIT BOARD, FLAME SENSOR SYSTEM, AIR PROVING SWITCH, IGNITION OPERATION DETECTOR, WATER TEMPERATURE HIGH LIMIT SWITCH, EXHAUST TEMPERATURE HIGH LIMIT SENSOR, POWER SURGE FUSE, OVERHEAT PREVENTION DEVICE, FREEZE PROTECTION MODE, FAN MOTOR ROTATION DETECTOR, 19mm NPT COLD/HOT/REGULATION AND GAS CONNECTION, 12mm CONDENSATE DRAIN CONNECTION, 50mm PVC INTAKE AND EXHAUST CONNECTIONS, 4.5 LITER (1.19 GALLON) WATER HOLDING CAPACITY, FLOW RATE CAPACITY OF 0.31 L/S (5.0 GPM) AT 25°C (77.0°F) TEMPERATURE RISE WITH A RATED INPUT OF 199,900 BTUH, 120/1/60 POWER
- EXP-1 DOM. H.W. EXP. TANK** AMTROL THERM-X-TROL MODEL ST-5 DIAPHRAGM TYPE EXPANSION TANK SUPPLIED COMPLETE WITH DEEP DRAWN STEEL CONSTRUCTION, HEAVY BUTYL RUBBER DIAPHRAGM, POLYPROPYLENE LINER MATERIAL, 275 kpa (40 PSIG) FACTORY PRECHARGE, POLYPROPYLENE LINER, 10mm NPT STAINLESS STEEL CONNECTION, 7.6 LITER TANK VOLUME, 3.4 LITER ACCEPTANCE VOLUME.
- BFP-1 BACKFLOW PREVENTER** WATTS MODEL LF007M1Q1-S-LF DOUBLE CHECK VALVE ASSEMBLY TYPE BACKFLOW PREVENTER SUPPLIED COMPLETE WITH LEAD FREE CAST COPPER SILICON ALLOY BODY CONSTRUCTION, TWO POSITIVE SEATING CHECK MODULES WITH CAPTURED SPRINGS AND REPLACEABLE RUBBER SEAT DISC, TOP MOUNTED LEAD FREE BALL VALVE TEST COCKS, LEAD FREE INLET STRAINER, 25mm FNPT CONNECTIONS.
- PRV PRESSURE REDUCING VALVE** WATTS MODEL LF223 LEAD FREE HIGH CAPACITY WATER PRESSURE REDUCING VALVE SUPPLIED COMPLETE WITH LEAD FREE BRASS BODY CONSTRUCTION, ENLARGED DIAPHRAGM, SPRING CAGE AND SEAT ORIFICE, SEALED SPRING CAGE, REPLACEABLE STAINLESS STEEL SEAT, 25-75 PSI ADJUSTMENT RANGE (FACTORY SET AT 50 PSI), 38mm FNPT CONNECTIONS.
- PRESSURE GAUGE** FNW MECHANICAL CONTRACTOR'S PRESSURE GAUGE SUPPLIED COMPLETE WITH 114mm# WHITE ALUMINUM DIAL, BLACK AND RED DUAL PRESSURE SCALES, 304 STAINLESS STEEL CASE AND RING, ACRYLIC LENS, 6mm BRASS MPT CONNECTION, MINI-BALL TYPE ISOLATION VALVE, PHOSPHOR BRONZE BOURDON TUBE AND BRASS MOVEMENT. RANGE TO SUIT SERVICE.
- THERMOMETER** WINTERS TSW SERIES HOT WATER THERMOMETER, DIAL TYPE SUPPLIED COMPLETE WITH ALUMINUM CASE, GLASS LENS, BRASS STEM AND 12mm LEAD FREE BRASS SEPARABLE THERMOWELL. DUAL SCALE, RANGE TO SUIT SERVICE.
- (X) FE** NATIONAL FIRE EQUIPMENT LTD. STRIKE FIRST (DIAMOND) MODEL ABC-050WWD 5lb DRY CHEMICAL FIRE EXTINGUISHER SUPPLIED COMPLETE WITH STEEL CYLINDER WITH CYLINDER SKIRT, POLYESTER POWDER PAINT FINISH, DISCHARGE VALVE WITH STAINLESS STEEL FERRULES, WATERPROOF STAINLESS STEEL GAUGE, STAINLESS STEEL PULL PIN, 3A10BC ULC RATING AND WALL HOOK.
- UH-1 GAS FIRED UNIT HEATER** MODINE MODEL PTC 555S011FBAN NATURAL GAS FIRED SEPARATED COMBUSTION HIGH EFFICIENCY CONDENSING UNIT HEATER SUPPLIED COMPLETE WITH 209g. ALUMINIZED STEEL CABINET WITH BAKED ON POLYESTER POWDER PAINT, ADJUSTABLE AIR DEFLECTOR BLADES, FINGERPROOF FAN GUARD, QUIET OPERATION FAN, L-SHAPED MOUNTING BRACKETS, TUBULAR STAINLESS STEEL HEAT EXCHANGER, DIRECT SPARK IGNITION, IN-SHOT BURNER, FACTORY INSTALLED POWER EXHAUSTER, SINGLE STAGE GAS CONTROL, SUPPLY AIR AND FLUE GAS HIGH LIMIT SAFETY CONTROLS, CONTROL TERMINAL BOARD AND LOW VOLTAGE TERMINAL CONNECTIONS, FAN DELAY TIMER, CONDENSATE DRAIN OVERFLOW SWITCH, OPTIONAL CONCENTRIC VENT ADAPTER BOX, 115/1/60 POWER CAPACITY: 55,000 BTUH INPUT/51,150 BTUH OUTPUT
- UH-2&3 GAS FIRED UNIT HEATER** MODINE MODEL PTC 855S011FBAN NATURAL GAS FIRED SEPARATED COMBUSTION HIGH EFFICIENCY CONDENSING UNIT HEATER SUPPLIED COMPLETE WITH 209g. ALUMINIZED STEEL CABINET WITH BAKED ON POLYESTER POWDER PAINT, ADJUSTABLE AIR DEFLECTOR BLADES, FINGERPROOF FAN GUARD, QUIET OPERATION FAN, L-SHAPED MOUNTING BRACKETS, TUBULAR STAINLESS STEEL HEAT EXCHANGER, DIRECT SPARK IGNITION, IN-SHOT BURNER, FACTORY INSTALLED POWER EXHAUSTER, SINGLE STAGE GAS CONTROL, SUPPLY AIR AND FLUE GAS HIGH LIMIT SAFETY CONTROLS, CONTROL TERMINAL BOARD AND LOW VOLTAGE TERMINAL CONNECTIONS, FAN DELAY TIMER, CONDENSATE DRAIN OVERFLOW SWITCH, OPTIONAL CONCENTRIC VENT ADAPTER BOX, 115/1/60 POWER CAPACITY: 85,000 BTUH INPUT/79,050 BTUH OUTPUT

**EQUIPMENT LIST -CONTINUED**

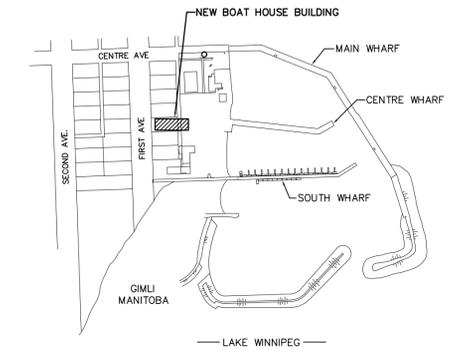
- MUA-1 MAKE-UP AIR UNIT** GREENHECK MODEL DGX-110-H12 DIRECT FIRED MAKE-UP AIR UNIT SUPPLIED COMPLETE LEFT HAND ACCESS WITH HEAVY GAUGE DOUBLE WALL G90 GALVANIZED STEEL HOUSING WITH 25mm INSULATION AND CONCRETE GRAY PERMATECTOR COATING, INSULATED PANELED BOTTOM, WEATHERROD WITH ALUMINUM BIRDSCREEN, WASHABLE ALUMINUM FILTERS AND CONCRETE GRAY PERMATECTOR COATING, REMOVABLE ACCESS PANELS, VCD-23 LOW LEAKAGE INLET DAMPER, FORWARD CURVED STEEL BLOWER AND MOTOR, ADJUSTABLE V-BELT DRIVE, STATIC FREE BELTS, TOP DISCHARGE POSITION, CONTROL CENTER, FREEZE PROTECTION, HEAT INLET AIR SENSOR, HIGH QUALITY CAST ALUMINUM BURNERS WITH STAINLESS STEEL MIXING PLATES, 25:1 TURNDOWN, ELECTRONIC MODULATION BURNER CONTROL, FLAME SAFEGUARD WITH OPTIONAL DIGITAL FAULT INDICATOR, HIGH/LOW GAS PRESSURE SWITCHES, 24 VOLT CONTROL CENTER WITH CONTROL TRANSFORMER, MAGNETIC MOTOR STARTER, DISTRIBUTION TERMINAL STRIP, SINGLE POINT POWER CONNECTION, FACTORY MOUNTED DISCONNECT SWITCH, REMOTE PANEL (SHIPPED LOOSE), SERVICE RECEPTACLE (SHIPPED LOOSE), 1hp ODP MOTOR, 230/1/60 POWER. CAPACITY: 930 L/S @ 95 Pa
- EF-1&2** GREENHECK MODEL QEJ-12-1-5 BELT DRIVE MIXED FLOW FAN SUPPLIED COMPLETE WITH CONTINUOUSLY WELDED STEEL HOUSING WITH CONCRETE GRAY PERMATECTOR COATING, HORIZONTAL CEILING HUNG MOUNTING WITH 'E' MOTOR MOUNTING POSITION, HANGING SPRING ISOLATORS, WELDED STEEL AIR STRAIGHTENING VANES, LIFTING LUGS, FLANGED INLET/OUTLET COLLARS, HEAVY DUTY STEEL MOTOR SUPPORTS, EXTENDED LUBE LINES, ALL WELDED WHEEL WITH CAMBERED BLADES, BOLTED ACCESS DOOR, BELT GUARD, NEMA-1 TOGGLE SWITCH, 1/2hp ODP MOTOR, 230/1/60 POWER. CAPACITY: 465 L/S @ 95 Pa
- EF-3** NUTONE MODEL QTX3N090C ULTRA SILENT VENTILATION FAN SUPPLIED COMPLETE WITH 26g. GALVANIZED STEEL HOUSING, HANGER BARS, POLYMER GRILLE, CENTRIFUGAL BLOWER, REMOVABLE BLOWER ASSEMBLY, RESILIENT ANTI-VIBRATION MOTOR MOUNTS, PLUG-IN PERMANENTLY LUBRICATED MOTOR, 150# CONNECTOR, MODEL 843AL WALL CAP WITH SPRING DAMPER AND BIRDSCREEN. CAPACITY: 25 L/S @ 62 Pa
- MD-1&2 MOTORIZED DAMPER** TAMCO SERIES 9000BF 35x355 THERMALLY INSULATED MOTORIZED DAMPER SUPPLIED WITH EXTRUDED ALUMINUM THERMALLY BROKEN FRAME, EXTRUDED ALUMINUM OPPOSED ACTION BLADES, SILICONE BLADE AND JAMB SEALS, INSTALLED IN DUCT TYPE MOUNTING ARRANGEMENT WITH DIRECT COUPLED SPRING RETURN DAMPER ACTUATOR, 120V POWER. PROVIDE JACK-SHAFTS WHERE REQUIRED.
- DF-1,2&3** BIG ASS FANS POWERFOIL X 3.0 DESTRATIFICATION FAN SUPPLIED COMPLETE WITH 3 DISTRACT. FAN METER (10"-0") FAN DIAMETER, EXTRUDED ALUMINUM POWERFOIL AIRFOILS WITH MILL FINISH AND SAFETY YELLOW POWERFOIL WINGLETS, SMALL I-BEAM STANDARD MOUNTING, AIRFOIL RETAINERS, A36 STEEL MOUNTING POST WITH POWDER COAT FINISH, PRECISION CUT ALUMINUM HUB, HUB CLIPS, SAFETY CABLES, GRADE 8 MOUNTING BOLTS, GUY WIRES, FIRE CONTROL PANEL INTEGRATION, ONBOARD VARIABLE FREQUENCY DRIVE WITH ABS/PVC BASED ENCLOSURE AND BUILT-IN HEATSHIELD, WALL CONTROLLER WITH 45.72M (150"-0") FACTORY ASSEMBLED CATS CABLE, ONBOARD FAN CONTROLLER, NITROSEAL DRIVE (STOBER) GEARBOX, 1.0hp MOTOR, 200-250/1/60 POWER.
- (GDS)** BIG ASS FANS SMART SENSE CONTROL SYSTEM SUPPLIED COMPLETE WITH ABS CONTROLLER HOUSING, ALUMINUM CONTROLLER COVER AND MOUNTING PLATE, INTERFACE HOUSING, ONE INTERNAL TEMPERATURE SENSOR, ONE REMOTE TEMPERATURE SENSOR WITH ABS SENSOR HOUSING, SUMMER, WINTER AND MANUAL MODE AND AC ADAPTER.
- GDS-1 CO/NO2 GAS DETECTION SYSTEM** QEL MODEL M-CONTROLLER-- DIGITAL ANALOG CONTROLLER SUPPLIED COMPLETE WITH NEMA 1 EPOXY PAINTED STEEL GENERAL PURPOSE ENCLOSURE, LED DIGITAL DISPLAY WITH SCROLL, LED STATUS LIGHTS, AUDIO INDICATOR, 3 DPDT RATED 5 AMP RESISTIVE 3.7 AMP INDUCTIVE RELAY OUTPUTS, INDEPENDENT RELAY ASSIGNMENT, 4 PARALLEL RS-485 DIGITAL INPUT PORTS, RS-422 TO HOST COMPUTER OUTPUT PORT, RS-232 OUTPUT PROGRAMMING PORT, 24V POWER.
- (CO)** QEL MODEL CTS-M5160X CARBON MONOXIDE GAS SENSOR/TRANSMITTER SUPPLIED COMPLETE WITH POLYCARBONATE/ABS BLEND FIRE RETARDANT ENCLOSURE, ALPHANUMERIC DISPLAY, ELECTROCHEMICAL SENSOR TYPE, 0 TO 125 PPM FACTORY SET RANGE, LESS THAN 60 SECOND RESPONSE TIME, USER SELECTABLE ANALOG/DIGITAL OUTPUT, 24V POWER. UNIT TO BE COMPATIBLE WITH CO/NO2 GAS DETECTION SYSTEM.
- (NO2)** QEL MODEL CTS-M5150X NITROGEN DIOXIDE GAS SENSOR/TRANSMITTER SUPPLIED COMPLETE WITH POLYCARBONATE/ABS BLEND FIRE RETARDANT ENCLOSURE, ALPHANUMERIC DISPLAY, ELECTROCHEMICAL SENSOR TYPE, 0 TO 8 PPM FACTORY SET RANGE, LESS THAN 60 SECOND RESPONSE TIME, USER SELECTABLE ANALOG/DIGITAL OUTPUT, 24V POWER. UNIT TO BE COMPATIBLE WITH CO/NO2 GAS DETECTION SYSTEM.
- FC-1 WELDING FILTER CART** NEDERMAN MOBILE WELDING FILTER CART ORIGINAL SUPPLIED COMPLETE WITH 2 METER LONG ADJUSTABLE SWIVELING ROTO MOULDED PLASTIC EXTRACTION ARM WITH ALUMINUM FRAME, EXTRACTION HOOD WITH DAMPER, PROTECTIVE GRATE AND LED LIGHT, OPTIONAL SPARK PROTECTION ACCESSORY, OPTIONAL HEPA FILTER, 120/1/60 POWER. CAPACITY: 295 L/S
- (H/T)** HONEYWELL MODEL RET97D001003/U PROGRAMMABLE THERMOSTAT SUPPLIED COMPLETE WITH 7 DAY PROGRAMMING, SMART RESPONSE TECHNOLOGY, MENU DRIVEN PROGRAMMING, BACK LIT DISPLAY, ARMCHAIR PROGRAMMING, FOUR DAILY PERIODS.

**SEQUENCE OF OPERATION**

**GAS DETECTION SYSTEM GDS-1**  
UPON SENSING A RISE IN THE SPACE CARBON MONOXIDE LEVEL ABOVE 25 PPM AND/OR NITROGEN DIOXIDE LEVEL ABOVE 0.72 PPM, THE GAS DETECTION SYSTEM SHALL SIGNAL THE MAKE-UP AIR UNIT WALL MOUNTED CONTROLLER. WALL MOUNTED CONTROLLER SHALL ENERGIZE EXHAUST FAN 1&2 MOTORIZED DAMPERS MD1&2. UPON DAMPERS REACHING THE FULLY OPEN POSITION AS SENSED BY THE DAMPER END SWITCH, EXHAUST FANS EF-1&2 SHALL BE ENERGIZED. UPON PROOF OF EXHAUST AIR FLOW, THE MAKE-UP AIR UNIT CONTROLLER SHALL BE ENERGIZED MAKE-UP AIR UNIT MUA-1. CONTROLLER SHALL MODULATE MAKE-UP AIR UNIT BURNER CONTROLLER TO MAINTAIN MAKE-UP AIR UNIT DISCHARGE TEMPERATURE AT SETPOINT (20°C)

**COMMISSIONING**

1. COMMISSION SYSTEM OPERATION TO VERIFY THE PROPER OPERATION OF ALL NEW EQUIPMENT TO VERIFY THE PROPER FUNCTIONING OF THE MECHANICAL SYSTEMS IN ACCORDANCE WITH THE SEQUENCE OF OPERATIONS.



**KEY PLAN**  
SCALE: N.T.S.

Department of Fisheries and Oceans Canada  
Small Craft Harbours  
Central and Arctic Region

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No.	Revision	Date	Initial
3	RE-ISSUED FOR CONSTRUCTION	JUN. 26/17	DS
2	RE-ISSUED FOR CONSTRUCTION	JUN. 23/17	DS
1	RE-ISSUED FOR CONSTRUCTION	DEC. 21/16	DS
0	ISSUED FOR CONSTRUCTION	DEC. 16/16	DS
A	ISSUED FOR CLIENT REVIEW	DEC. 13/16	DS

**Notes:**  
1. CONTRACTOR SHALL BE RESPONSIBLE FOR CHECKING DIMENSIONS AND EXISTING CONDITIONS AT THE OUTSET OF CONSTRUCTION. REPORT ANY DISCREPANCIES TO THE ENGINEER. DO NOT PROCEED WITHOUT FURTHER WRITTEN DIRECTION FROM THE ENGINEER.  
2. DRAWING SHOWS GENERAL ARRANGEMENT ONLY. DO NOT SCALE.

Approved

**TBT ENGINEERING CONSULTING GROUP**  
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**SAR BOATHOUSE AND WORKSHOP**  
GIMLI, MANITOBA MANITOBA

**EQUIPMENT LIST, SEQUENCE OF OPERATION AND COMMISSIONING NOTES**

**APECM**  
Certificate of Authorization  
JML Engineering Ltd.  
No. 2186 Date: June 26 2017

MECHANICAL DRAWINGS SHALL BE READ IN CONJUNCTION WITH ELECTRICAL DRAWINGS

Scale: AS NOTED	Drawn By: ER Ckd. By: DS Dwg. No.: 16-336-M5	Date: JUNE 2017 Rev. 3
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