

ECANZ CHALLENGE

DOMESTIC/COMMERCIAL **Preliminary Competition**

Project Information Guide

This document serves as a guide to a preliminary project of the ECANZ Challenge Electrical Apprentice of the year competition. It is intended to provide project information that is similar to what may be given to apprentices in the preliminaries for them to build.

This document cannot be copied in its entirety and/or partly, without written consent from ECANZ.

For information visit www.ecanzchallenge.co.nz

ECANZ
CHALLENGE

Copyright 2007

COMPETITOR TASK LIST

LIGHTING CIRCUIT

This circuit simulates lighting that can be found in a Commercial type situation where a number of lighting points can be individually controlled from respective switches, but all lighting can be controlled from several points via a contactor circuit (ie. a master circuit).

SINGLE PHASE POWER CIRCUIT

This is a single phase socket outlet rated for 16A fed from the Distribution Board.

MOTOR AND CONTROL CIRCUIT

This circuit is based on the type of circuits found being used as dairy farm wash-down pumps. The circuit consists of a power circuit that has the required motor overload protection supplied via a motor circuit breaker. The circuit also comprises of a contactor that has its coil controlled by a local STOP / START station mounted on the Control Panel. A length of 25mm conduit has been provided for the IP-rated switch and socket units simulating protection for the pump motor cable in an “outdoors” location.

COMPETITION RULES

1. Appropriate safety clothing must be worn.
2. Covered footwear must be worn, preferably safety boots.
3. Earmuffs and safety glasses must be worn when required.
4. Wandering around other competitors work areas and discussing the project with other competitors is not permitted.
5. Smoking is not permitted inside competitor's area.
6. Radios are not permitted.
7. Should any project equipment be faulty extra time will be provided. The amount of extra time will be determined by the Chief Judge.
8. Non-compliance with these rules may result in disqualification.
9. If unsure, ask.

NOTES for COMPETITORS

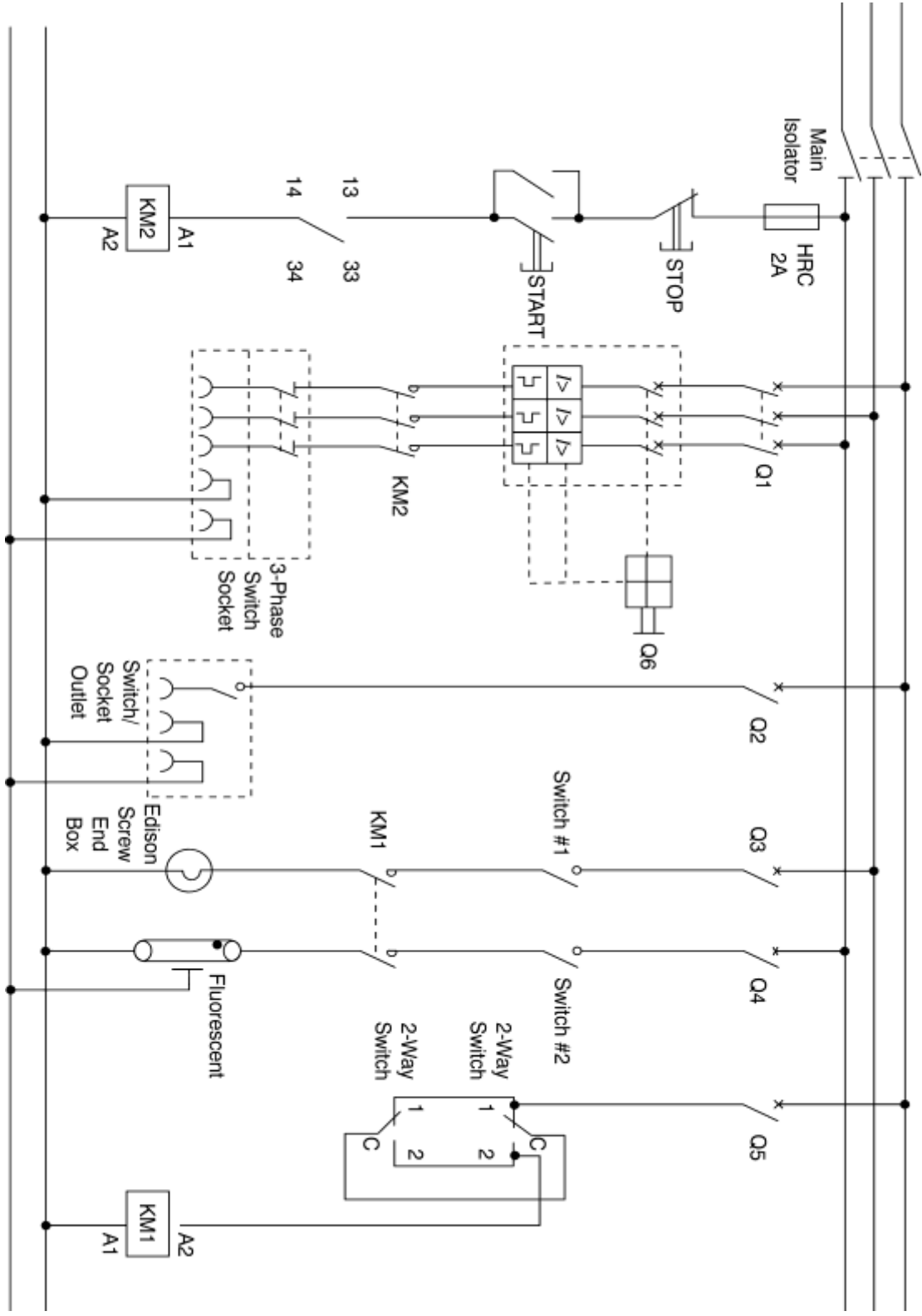
- All lighting points will be wired with an earthing conductor.
- The field wiring to the lighting circuits shall be re-designed to avoid unnecessary runs to the field devices.
- Competitors will provide the judges with an “as-built” wiring diagram for the purposes of marking.
- Offsets are required for all conduit entering the Distribution Board, Control Panel and other appropriate fittings. Offsets are not required for the mounting blocks or end boxes.
- Plain-to-screw adapters are not required for the conduits entering the mounting blocks.
- All trunking must be correctly mitred (joiners joint acceptable).
- All MCB wiring within the Distribution Board and Control Panel shall be min 2.5mm².
- MCBs shall be ring fed.

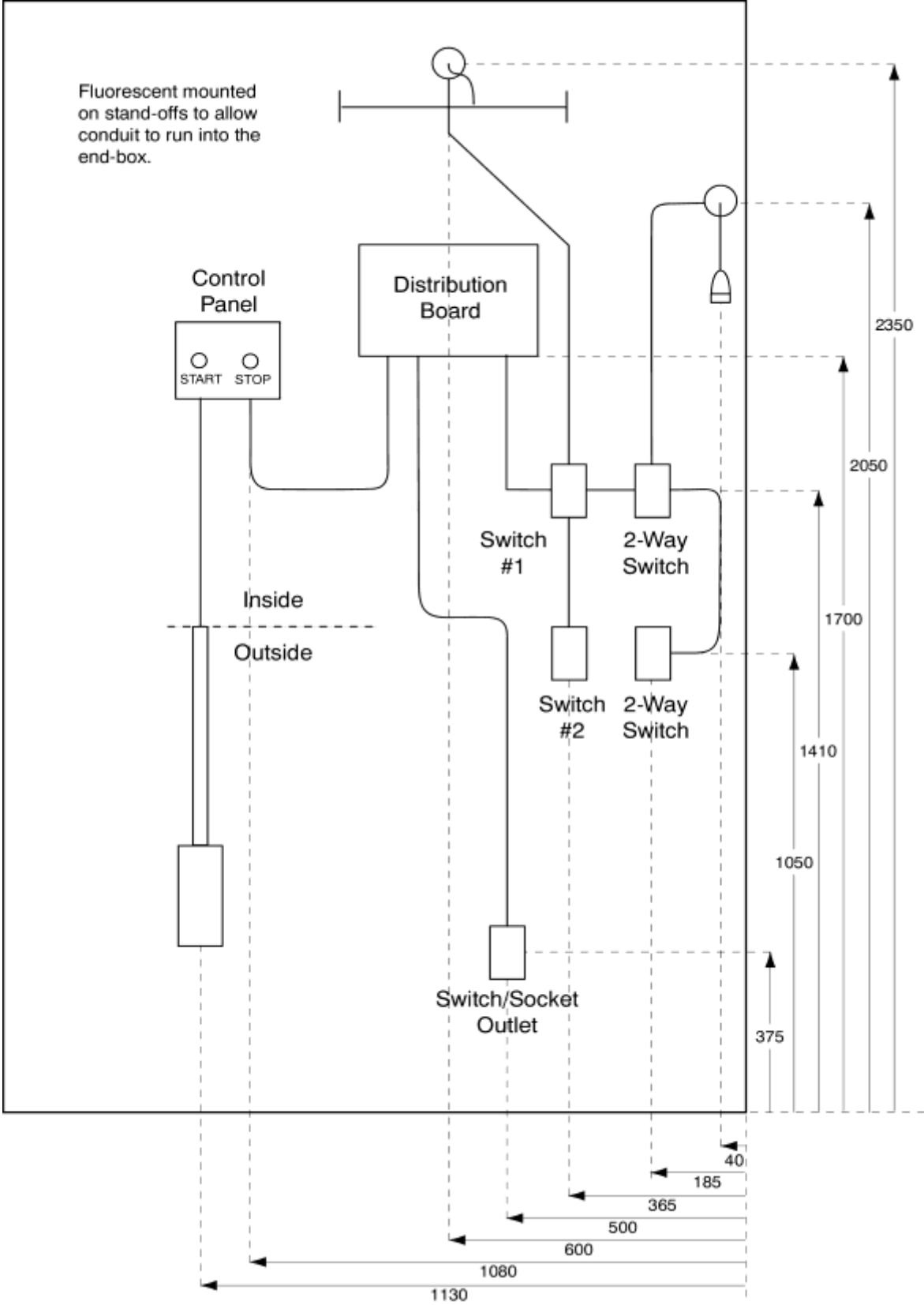
COMPETITION AREAS

Competition areas are open to view by the public and other competitors. Competitors shall not, however, examine other competitors work at close quarters during the competition.

***SAFETY
IS ESSENTIAL***

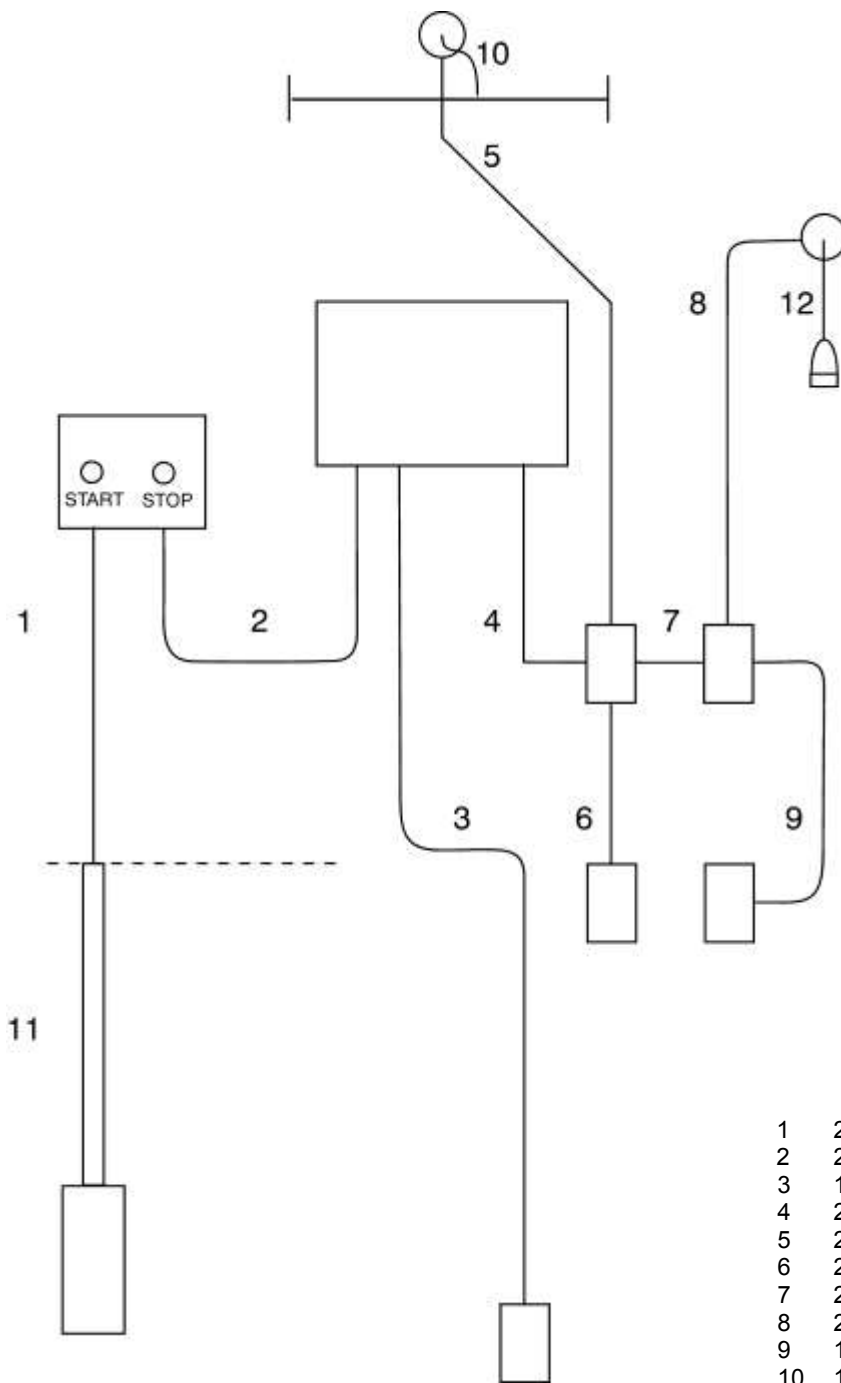
WIRING DIAGRAM





**ECANZ
CHALLENGE**

Copyright 2007

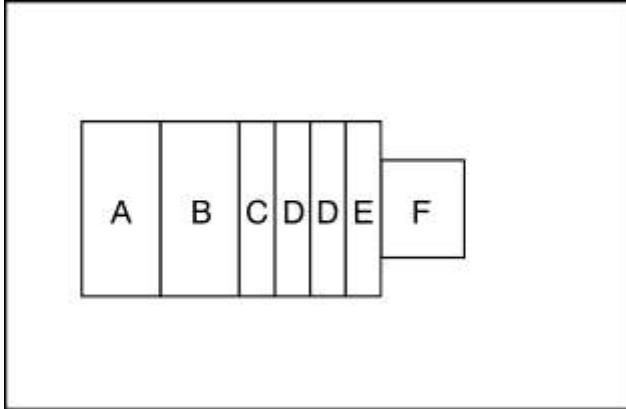


- 1 2.5mm 4 Core + E
- 2 20mm Conduit
- 3 1.5mm Twin + E TPS
- 4 25 x 25mm Trunking
- 5 20mm Conduit
- 6 20mm Conduit
- 7 20mm Conduit
- 8 20mm Conduit
- 9 1.0mm 3 Core TPS
- 10 1.0mm 3 Core Flex
- 11 25mm Conduit
- 12 1.0mm Twin Flex

**ECANZ
CHALLENGE**

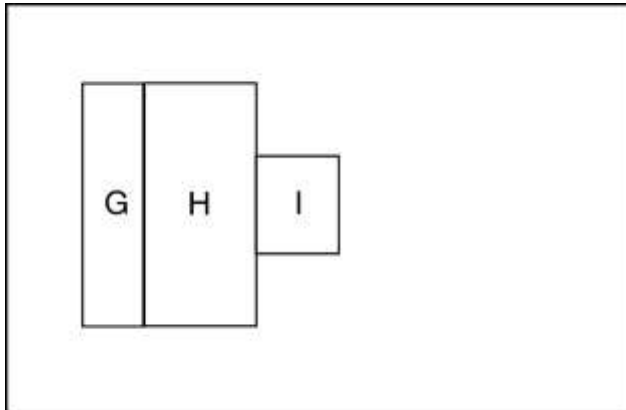
Copyright 2007

DISTRIBUTION BOARD



- A 1 x 3 phase 63A Isolator
- B 1 x 3 phase 20A MCB (Q1)
- C 1 x single phase 16A MCB (Q2)
- D 2 x single phase 10A MCB (Q3 & Q4)
- E 1 x single phase 6A MCB (Q5)
- F 1 x Contactor (4 N.O.)

CONTROL PANEL



- G 1 x HRC 2A fuse
- H 1 x motor circuit breaker & auxiliary (Q6)
- I 1 x Contactor (4 N.O.)

TEST REPORT (not shown)

MATERIAL LIST (not shown)

RECOMMENDED TOOL LIST

- 1 Electricians Pliers
- 2 Side Cutters
- 3 Long Nose Pliers
- 4 Measuring Tape
- 5 Measuring Ruler
- 6 Level
- 7 Chalk Line
- 8 Set Square
- 9 Pocket Knife
- 10 Hacksaw
- 11 Bending Springs (20/25mm)
- 12 Hammer
- 13 Battery Drill with charger, spare battery and drill bits
- 14 Adjustable Spanner
- 15 Polygrips
- 16 Screwdrivers: Philips, flat and square drive
- 17 Reamer
- 18 Flat File
- 19 Round File
- 20 Half-Round File
- 21 Centre Punch
- 22 Holesaw Set
- 23 Pen, pencil, highlighter
- 24 Toolbox
- 25 Crimp Tool
- 26 Draw Wire
- 27 Cable Strippers
- 28 Safety Goggles, safety glasses, ear plugs
- 29 Spirit Level
- 30 Test Equipment (multimeter)
- 31 Insulation Resistance Tester