A-T Electrical

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Electrical Load Assessment Report

Site: Frankland River Hall

Task: Conduct load assessment and calculate total power consumption for future additions. Determine if incoming power supply is adequate for proposed power increase.

1) Existing Incoming Supply Capacity

- **Incoming mains:** 16 mm², 3-phase
- **Calculated capacity of existing mains: 58 A (3-phase)**

2) Existing Maximum Demand

- **Existing installation maximum demand: 135 A (3-phase)**

Finding: Existing maximum demand exceeds the incoming mains capacity.

- **Deficit:** 135 A − 58 A = **77 A shortfall**

3) Proposed Addition – Air Conditioning

- **Proposed A/C addition: +45 A (3-phase)**

4) New Total Maximum Demand

- **Revised maximum demand:** 135A + 45 A = **180 A**
- **Capacity required (allowance): 181 A**

Finding: With proposed A/C, the site will require approximately **180–181 A** maximum demand.

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5) Adequacy of Existing Supply for Proposed Increase

- **Incoming mains capacity: 58 A**
- **New required demand: ~181 A**

Conclusion: Incoming supply is not adequate for existing demand and will be significantly undersized for the proposed A/C installation.

- **Shortfall after addition:** 181 A − 58 A = **123 A shortfall**

6) Usage Options to Manage Demand

Maximum demand may be reduced depending on how the hall is operated, including:

- **Staggering loads:** Avoiding simultaneous operation of high-load equipment (e.g., kitchen equipment, hot water, A/C, and other large appliances at the same time).
- **Event-based load planning:** Setting operating rules for different event types (small gatherings vs large functions).
- **Demand management / current limiting:** Installing and configuring **current limiters** to cap peak usage and prevent the supply rating being exceeded (with load shedding or controlled shutdown of non-essential circuits if required).

Note: Demand management can reduce *peak usage* but does not increase the physical capacity of the existing incoming mains—operational limits will apply during high-use events.

7) Recommendation

- **Apply to Western Power for a supply increase / upgrade** to suit the revised site demand (**~181 A, 3-phase**), including assessment of upstream network capacity and required consumer mains / metering alterations.

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- In the interim (or if an upgrade timeframe is extended), implement **usage controls and demand management** (current limiters) to reduce peak demand and align hall operation with available supply capacity.

Summary

- Existing incoming mains rated capacity: **58 A (3-phase)**
- Existing maximum demand: **135 A** *(already exceeds incoming capacity)*
- Proposed A/C additional load: **45 A**
- New maximum demand: **~180–181 A**
  Recommended action: **Apply to Western Power for supply increase**, with demand management/usage planning as interim controls.

	Red	White	Blue
Main Switchboard			
Kitchen	20	20	20
HWS		15	
Rangehood	12	12	12
GPO's		8.6	8.6
Library A/C	14		
Lights	5	5	5
Supper A/C			9.3
Pump		10	
Stove	15		
Oven			15
Library Sub board Total	26	26	26
Toilet / laundry Sub Board Total	40	40	40
Building Total (Amps)	132	136.6	135.9
Proposed A/C	45	45	30
Total Power Required	177	181.6	165.9
Consumer Mains Size and Capacity (Amps) 16mm	58	58	58

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