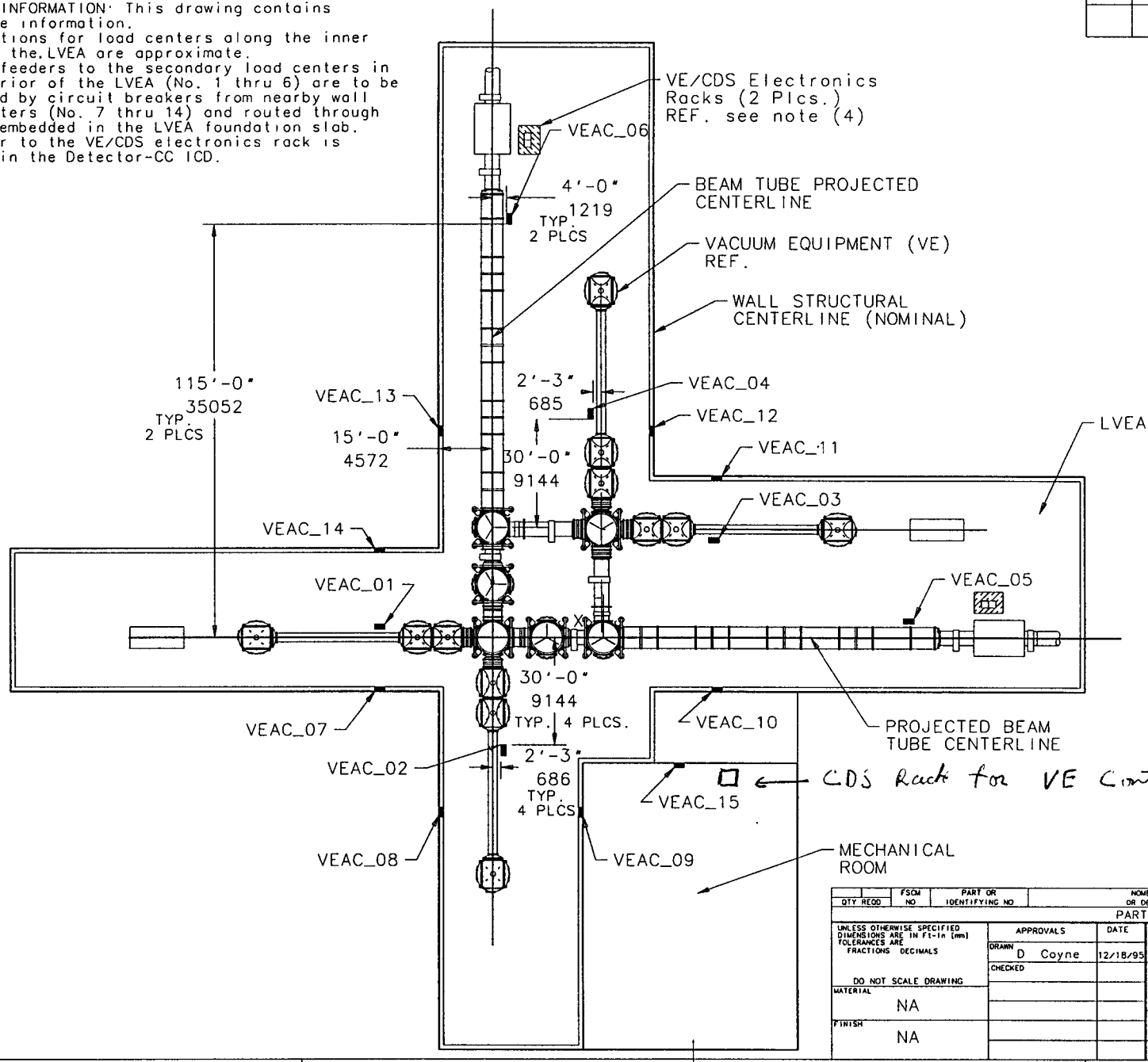


NOTES: (UNLESS OTHERWISE SPECIFIED)

- (1) ICD INFORMATION: This drawing contains interface information.
- (2) Locations for load centers along the inner walls of the LVEA are approximate.
- (3) The feeders to the secondary load centers in the interior of the LVEA (No. 1 thru 6) are to be protected by circuit breakers from nearby wall load centers (No. 7 thru 14) and routed through conduit embedded in the LVEA foundation slab.
- (4) Power to the VE/CDS electronics rack is defined in the Detector-CC ICD.

REV	DESCRIPTION OF CHANGE	APPROVAL	DATE

DRAFT



QTY	FSCM NO	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION	MATERIAL SPECIFICATION	ITEM NO
PARTS LIST					
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN FT-IN (MM) TOLERANCES ARE FRACTIONS DECIMALS		APPROVALS	DATE	LIGO CALIFORNIA INSTITUTE OF TECHNOLOGY MASSACHUSETTS INSTITUTE OF TECHNOLOGY	
DO NOT SCALE DRAWING		DRAWN D Coyne	12/18/95	TITLE VE ELECTRICAL POWER LOCATIONS - LVEA	
MATERIAL	NA	CHECKED		SIZE A3	DWG NO D950144
FINISH	NA			SCALE NTS	REV NA
				SHEET 1 of 1	

DRAFT

Table 1: VE Power Required^a at Load Centers in the Corner Station Building

Voltage	208Y/120V, 3φ							480Y/277V, 3φ						
	Location ^b	# C ^c	φ	KVA ^d	CB (A)	# R ^e	Recepticle (NEMA)	nominal use	# C	φ	KVA	CB (A)	# R	Recepticle (NEMA)
C-CC-PD-VEAC_01	2	1	1.9	20	5	L16-20R	general; ann. ion; aux. turbo	1	3	27.0	40	1	L22-50R	heating blanket cart
	1	3	8.6	30	1	TBD-VE	general	1	3	3.7	15	1	L16-50R	portable clean room
	1	3	5.8	20	1	TBD-VE	general	1	3	3.7	15	1	L16-20R	main roughing pump
	2	1	1.4	15	0	direct	gate valve	1	1	0.4	20	1	L5-20R	main turbo pump
C-CC-PD-VEAC_02	2	1	1.9	20	5	L16-20R	general; ann. ion; aux. turbo	1	3	27.0	40	1	L22-50R	heating blanket cart
	1	3	8.6	30	1	TBD-VE	general	1	3	3.7	15	1	L16-50R	portable clean room
	1	3	5.8	20	1	TBD-VE	general	1	3	3.7	15	1	L16-20R	main roughing pump
	2	1	1.4	15	0	direct	gate valve	1	1	0.4	20	1	L5-20R	main turbo pump
C-CC-PD-VEAC_03	2	1	1.9	20	5	L16-20R	general; ann. ion; aux. turbo	1	3	27.0	40	1	L22-50R	heating blanket cart
	1	3	8.6	30	1	TBD-VE	general	1	3	3.7	15	1	L16-50R	portable clean room
	1	3	5.8	20	1	TBD-VE	general	1	3	3.7	15	1	L16-20R	main roughing pump
C-CC-PD-VEAC_04	2	1	1.9	20	5	L16-20R	general; ann. ion; aux. turbo	1	3	27.0	40	1	L22-50R	heating blanket cart
	1	3	8.6	30	1	TBD-VE	general	1	3	3.7	15	1	L16-50R	portable clean room
	1	3	5.8	20	1	TBD-VE	general	1	3	3.7	15	1	L16-20R	main roughing pump
C-CC-PD-VEAC_05	2	1	1.9	20	5	L16-20R	general; ann. ion; aux. turbo	1	3	27.0	40	1	L22-50R	heating blanket cart
	1	3	8.6	30	1	TBD-VE	general	1	3	3.7	15	1	L16-50R	portable clean room
	1	3	5.8	20	1	TBD-VE	general	1	1	0.4	20	1	L5-20R	main turbo pump
	2	1	1.4	15	0	direct	gate valve	1	3	20	30	0	direct	cryopump regenerator
C-CC-PD-VEAC_06	2	1	1.9	20	5	L16-20R	general; ann. ion; aux. turbo	1	3	27.0	40	1	L22-50R	heating blanket cart
	1	3	8.6	30	1	TBD-VE	general	1	3	3.7	15	1	L16-50R	portable clean room
	1	3	5.8	20	1	TBD-VE	general	1	1	0.4	20	1	L5-20R	main turbo pump
	2	1	1.4	15	0	direct	gate valve	1	3	20	30	0	direct	cryopump regenerator
C-CC-PD-VEAC_07	-	-	-	-	-	-	-	1	3	27.0	40	1	L22-50R L16-50R	heating blanket cart portable clean room

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Table 1: VE Power Required^a at Load Centers in the Corner Station Building

Voltage	208Y/120V, 3φ							480Y/277V, 3φ							
	Location <i>b</i>	# <i>C^c</i>	φ	KVA <i>d</i>	CB (A)	# <i>R^e</i>	Receptacle (NEMA)	nominal use	# <i>C</i>	φ	KVA	CB (A)	# <i>R</i>	Receptacle (NEMA)	nominal use
	C-CC-PD-VEAC_08	-	-	-	-	-	-	-	1	3	27.0	40	1 1	L22-50R L16-50R	heating blanket cart portable clean room
	C-CC-PD-VEAC_09	-	-	-	-	-	-	-	1	3	27.0	40	1 1	L22-50R L16-50R	heating blanket cart portable clean room
	C-CC-PD-VEAC_10	-	-	-	-	-	-	-	1	3	27.0	40	1 1	L22-50R L16-50R	heating blanket cart portable clean room
	C-CC-PD-VEAC_11	-	-	-	-	-	-	-	1	3	27.0	40	1 1	L22-50R L16-50R	heating blanket cart portable clean room
	C-CC-PD-VEAC_12	-	-	-	-	-	-	-	1	3	27.0	40	1 1	L22-50R L16-50R	heating blanket cart portable clean room
	C-CC-PD-VEAC_13	-	-	-	-	-	-	-	1	3	27.0	40	1 1	L22-50R L16-50R	heating blanket cart portable clean room
	C-CC-PD-VEAC_14	-	-	-	-	-	-	-	1	3	27.0	40	1 1	L22-50R L16-50R	heating blanket cart portable clean room
	C-CC-PD-VEAC_15	8 1 2	3 1 1	1.9 1 1.9	30 20 20	1 0 0	TBD-VE direct direct	main ion pump ps vacuum gauge ps VE/CDS electronics rack	1 2 2	3 3 3	61.0 52.0 8.0	175 110 20	0 0 1	direct direct L16-20R	air compressor roughing pump backing turbo pump backing

a. All power to the VE is "facility power".

b. Locations are indicated in drawing LIGO-D950144-sk-E. The nomenclature is as follows:

station-system-subsystem-unit

where in this case, C = corner station, CC = Civil Construction, PD = Power Distribution, VEAC_n = n'th Vacuum Equipment AC location

c. Number of separate circuits and circuit breakers.

d. Maximum continuous KVA per circuit.

e. Number of receptacles (duplex receptacles for single phase locations).

Table 2: VE Power Required^a at Load Centers in the Mid-Station Building

Voltage	208Y/120V, 3 ϕ							480Y/277V, 3 ϕ						
	<i>Location^b</i>	# <i>C^c</i>	ϕ	<i>KVA^d</i>	<i>CB (A)</i>	# <i>R^e</i>	<i>Recepticle (NEMA)</i>	<i>nominal use</i>	# <i>C</i>	ϕ	<i>KVA</i>	<i>CB (A)</i>	# <i>R</i>	<i>Recepticle (NEMA)</i>
Ma-CC-PD- VEAC_01	2	1	1.9	20	5	L16-20R	general; ann. ion; aux. turbo general gate valve	1	3	27.0	40	1	L22-50R	heating blanket cart portable clean room main turbo pump cryopump regenerator
	1	3	8.6	30	1	TBD-VE		1	1	0.4	20	1	L16-50R	
	2	1	1.4	15	0	direct		1	3	20	30	0	L5-20R direct	
Ma-CC-PD- VEAC_02	2	1	1.9	20	5	L16-20R	general; ann. ion; aux. turbo general gate valve	1	3	27.0	40	1	L22-50R	heating blanket cart portable clean room main turbo pump cryopump regenerator
	1	3	8.6	30	1	TBD-VE		1	1	0.4	20	1	L16-50R	
	2	1	1.4	15	0	direct		1	3	20	30	0	L5-20R direct	
Ma-CC-PD- VEAC_03	1	3	1.4	30	1	TBD-VE	main ion pump ps vacuum gauge ps VE/CDS electronics rack	1	3	19	80	0	direct	air compressor turbo pump backing
	1	1	1	20	0	direct		1	3	8.0	20	1	L16-20R	
	2	1	1.9	20	0	direct								

a. All power to the VE is “facility power”.

b. Locations are indicated in drawing LIGO-D950144-sk-E. The nomenclature is as follows:

station-system-subsystem-unit

where in this case, Ma = mid-station on arm “a”, where $a \in \{x, y\}$; CC = Civil Construction, PD = Power Distribution, VEAC_n = n’th Vacuum Equipment AC location

c. Number of separate circuits and circuit breakers.

d. Maximum continuous KVA per circuit.

e. Number of receptacles (duplex receptacles for single phase locations).

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Table 3: VE Power Required^a at Load Centers in the End-Station Building

Voltage	208Y/120V, 3 ϕ							480Y/277V, 3 ϕ						
	# C ^c	ϕ	KVA <i>d</i>	CB (A)	# R ^e	Recepticle (NEMA)	<i>nominal use</i>	# C	ϕ	KVA	CB (A)	# R	Recepticle (NEMA)	<i>nominal use</i>
Ea-CC-PD- VEAC_01	2	1	1.9	20	5	L16-20R	general; ann. ion; aux. turbo general gate valve	1	3	27.0	40	1	L22-50R	heating blanket cart portable clean room main turbo pump cryopump regenerator
	1	3	8.6	30	1	TBD-VE		1	1	0.4	20	1	L16-50R	
	2	1	1.4	15	0	direct		1	3	20	30	0	L5-20R direct	
Ea-CC-PD- VEAC_02 see note ^f	2	1	1.9	20	5	L16-20R	general; ann. ion; aux. turbo general gate valve	1	3	27.0	40	1	L22-50R	heating blanket cart portable clean room main turbo pump cryopump regenerator
	1	3	8.6	30	1	TBD-VE		1	1	0.4	20	1	L16-50R	
	2	1	1.4	15	0	direct		1	3	20	30	0	L5-20R direct	
Ea-CC-PD- VEAC_03	1	3	1.4	30	1	TBD-VE	main ion pump ps vacuum gauge ps VE/CDS electronics rack	1	3	19	80	0	direct	air compressor turbo pump backing
	1	1	1	20	0	direct		1	3	8.0	20	1	L16-20R	
	2	1	1.9	20	0	direct								

a. All power to the VE is “facility power”.

b. Locations are indicated in drawing LIGO-D950144-sk-E. The nomenclature is as follows:
station-system-subsystem-unit

where in this case, Ea = mid-station on arm “a”, where $a \in \{x, y\}$; CC = Civil Construction, PD = Power Distribution, VEAC_n = n'th Vacuum Equipment AC location

c. Number of separate circuits and circuit breakers.

d. Maximum continuous KVA per circuit.

e. Number of receptacles (duplex receptacles for single phase locations).

f. The Ea-CC-PD-VEAC_02 location is for use in future expansion of the End-Station.