

## SECTION 16470 PANELBOARDS

### PART 1 - GENERAL

#### 1.1 SECTION INCLUDES

- A. Residential Load Centers.

#### 1.2 REFERENCES

- A. NECA (National Electrical Contractors Association) “Standard of Installation.”
- B. NEMA AB 1 - Molded Case Circuit Breakers.
- C. NEMA PB 1 - Panelboards.
- D. NEMA PB 1.1 - Instructions for Safe Installation, Operation and Maintenance of Panelboards rated 600 Volts or Less.
- E. NEMA PB 1.2 - Application Guide for Ground-fault Protective Devices for Equipment.
- F. NFPA 70 - National Electrical Code.

#### 1.3 SUBMITTALS

- A. Include outline and support point dimensions, voltage, main bus ampacity, integrated short circuit ampere rating, circuit breaker arrangement and sizes.

#### 1.4 SPARE PARTS

- A. Keys: Furnish three sets to Owner.

### PART 2 - PRODUCTS

#### 2.1 LOAD CENTERS

- A. Manufacturers:
  - 1. Square D.
  - 2. General Electric.
  - 3. Siemens.
  - 4. Substitutions: Or Approved Equal.
- B. Load Centers: NEMA PB 1; circuit breaker type. UL listed for service entrance duty.
- C. Enclosure: Recessed, NEMA PB 1; Type 1.
- D. Cabinet Size: 3¾ inches deep; 14¼ inches wide.

- E. Provide cabinet front with concealed trim clamps, concealed hinge and flush lock all keyed alike. Finish in manufacturer's standard gray enamel.
- F. Provide panelboards with copper bus, ratings as scheduled on Drawings. Provide copper ground bus in all panelboards.
- G. Minimum Integrated Short Circuit Rating: 22,000 amperes RMS symmetrical for 240-volt panelboards.
- H. Molded Case Circuit Breakers: NEMA AB 1; plug-on type thermal magnetic trip circuit breakers, with common trip handle for all poles.
- I. Arc-Fault Circuit Breakers: Provide arc-fault circuit breakers for all circuits that service receptacle outlets in bedrooms.

### PART 3 - EXECUTION

#### 3.1 INSTALLATION

- A. Install load centers plumb and flush with wall finishes, in conformance with NEMA PB 1.1. Install recessed, flush with wall finishes.
- B. Height: 6 feet to top of load center.
- C. Provide filler plates for unused spaces in load centers.
- D. Provide typed circuit directory for each branch circuit panelboard

#### 3.2 FIELD QUALITY CONTROL

- A. Measure state load currents at each new panelboard feeder. Should the difference at any panelboard between phases exceed 20 percent, rearrange circuits in the panelboard to balance the phase loads within 20 percent. Take care to maintain proper phasing for multi-wire branch circuits.
- B. Visual and Mechanical Inspection: Inspect for physical damage, proper alignment, anchorage, and grounding. Check proper installation and tightness of connections for circuit breakers, fusible switches, and fuses.

END OF SECTIO

VOLTS: 120/240 AMPS 100  
 MOUNT: RECESSED PHASE: 1

MAIN: MLO  
 WIRES: 3

PANEL: UNIT A  
 LOCATION: BEDROOM

BREAKER		DESCRIPTION	CKT VA	TYPE	CKT NO.	LOAD		CKT NO.	TYPE	CKT VA	DESCRIPTION	BREAKER	
A	P					A	B					P	A
50	2	RANGE	4000	O	1	4258		2	L	258	LIGHTS	1	20
50	2	RANGE	4000	O	3		4400	4	R	400	BATHROOM RECEPTACLE	1	20
20	1	RANGE HOOD	500	M	5	1300		6	R	800	BEDROOM RECEPTACLES	1	20
20	1	REFRIGERATOR	1000	R	7		2000	8	R	1000	LIVINGROOM RECEPTACLES	1	20
20	1	KITCHEN RECEPTACLES	800	R	9	1400		10	R	600	HALL/EXTERIOR RECEPT	1	20
20	1	KITCHEN RECEPTACLES	800	R	11		1300	12	O	500	FIRE ALARM	1	20
20	1	DOORBELL	500	O	13	2000		14	R	1500	DISHWASHER	1	20
20	1	SPARE	500	S	15		1000	16	S	500	SPARE	1	20
20	1	SPARE	500	S	17	1000		18	S	500	SPARE	1	20
20	1	SPARE	500	S	19		1000	20	S	500	SPARE	1	20
20	1	SPARE	500	S	21	1000		22	S	500	SPARE	1	20
20	1	SPARE	500	S	23		1000	24	S	500	SPARE	1	20

PHASE TOTALS 10958

10700

DEMAND

CONNECTED VOLT-AMPERES= 21658  
 CONNECTED AMPERES= 90  
 DEMAND VOLT-AMPERES= 10958  
 DEMAND AMPERES= 46

CIRCUIT TYPE CODES DEMAND FACTOR  
 L LIGHTS 1.0  
 M MOTORS 0.5  
 R RECEPTACLES 0.5  
 H HEAT 1.0  
 O OTHER 0.5  
 S SPARE 0.5

PROJECT: **PEARL PLACE**  
 PROJ. NO: 05-0017b  
 DATE: 09/01/06  
 STATUS: FOR CONSTRUCTION

**Bartlett Design**  
**LIGHTING & ELECTRICAL ENGINEERING**  
 942 WASHINGTON STREET BATH, MAINE 04530  
 TEL (207) 443-5447 FAX (207) 443-5560

VOLTS: 120/240      AMPS 100  
 MOUNT: RECESSED      PHASE: 1

MAIN: MLO  
 WIRES: 3

PANEL: UNIT B  
 LOCATION: BEDROOM

BREAKER		DESCRIPTION	CKT VA	TYPE	CKT NO.	LOAD		CKT NO.	TYPE	CKT VA	DESCRIPTION	BREAKER	
A	P					A	B					P	A
50	2	RANGE	4000	O	1	4310		2	L	310	LIGHTS	1	20
50	2	RANGE	4000	O	3		4400	4	R	400	BATHROOM RECEPTACLE	1	20
20	1	RANGE HOOD	500	M	5	1500		6	R	1000	BEDROOM RECEPTACLES	1	20
20	1	REFRIGERATOR	1000	R	7		1800	8	R	800	BEDROOM RECEPTACLES	1	20
20	1	KITCHEN RECEPTACLES	800	R	9	1800		10	R	1000	LIVINGROOM RECEPTACLES	1	20
20	1	KITCHEN RECEPTACLES	800	R	11		1200	12	R	400	HALL/EXTERIOR RECEPT	1	20
20	1	DOORBELL	500	O	13	1000		14	O	500	FIRE ALARM	1	20
20	1	SPARE	500	S	15		2000	16	R	1500	DISHWASHER	1	20
20	1	SPARE	500	S	17	1000		18	S	500	SPARE	1	20
20	1	SPARE	500	S	19		1000	20	S	500	SPARE	1	20
20	1	SPARE	500	S	21	1000		22	S	500	SPARE	1	20
20	1	SPARE	500	S	23		1000	24	S	500	SPARE	1	20

PHASE TOTALS      10610

11400

CONNECTED VOLT-AMPERES= 22010  
 CONNECTED AMPERES= 92  
 DEMAND VOLT-AMPERES= 11160  
 DEMAND AMPERES= 47

DEMAND

CIRCUIT TYPE CODES      FACTOR

L    LIGHTS                      1.0  
 M    MOTORS                       0.5  
 R    RECEPTACLES              0.5  
 H    HEAT                           1.0  
 O    OTHER                         0.5  
 S    SPARE                         0.5

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VOLTS: 120/240 AMPS 100  
MOUNT: RECESSED PHASE: 1

MAIN: MLO  
WIRES: 3

PANEL: UNIT C  
LOCATION: BEDROOM

BREAKER		DESCRIPTION	CKT VA	TYPE	CKT NO.	LOAD		CKT NO.	TYPE	CKT VA	DESCRIPTION	BREAKER	
A	P					A	B					P	A
50	2	RANGE	4000	O	1	4435		2	L	435	LIGHTS	1	20
50	2	RANGE	4000	O	3		4800	4	R	800	BEDROOM RECEPTACLES	1	20
20	1	RANGE HOOD	500	M	5	1300		6	R	800	BEDROOM RECEPTACLES	1	20
20	1	REFRIGERATOR	1000	R	7		1800	8	R	800	BEDROOM RECEPTACLES	1	20
20	1	KITCHEN RECEPTACLES	800	R	9	1800		10	R	1000	LIVINGROOM RECEPTACLES	1	20
20	1	KITCHEN RECEPTACLES	800	R	11		1400	12	R	600	HALL/EXTERIOR RECEPT	1	20
20	1	BATHROOM RECEPTACLE	400	R	13	900		14	O	500	FIRE ALARM	1	20
20	1	BATHROOM RECEPTACLE	400	R	15		900	16	O	500	DOORBELL	1	20
20	1	DISHWASHER	1500	O	17	2000		18	S	500	SPARE	1	20
20	1	SPARE	500	S	19		1000	20	S	500	SPARE	1	20
20	1	SPARE	500	S	21	1000		22	S	500	SPARE	1	20
20	1	SPARE	500	S	23		1000	24	S	500	SPARE	1	20
PHASE TOTALS						11435		10900					

CONNECTED VOLT-AMPERES= 22335  
CONNECTED AMPERES= 93  
DEMAND VOLT-AMPERES= 11385  
DEMAND AMPERES= 47

DEMAND FACTOR

CIRCUIT TYPE CODES

L LIGHTS 1.0  
M MOTORS 0.5  
R RECEPTACLES 0.5  
H HEAT 1.0  
O OTHER 0.5  
S SPARE 0.5

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VOLTS: 120/240 AMPS 100 MAIN: MLO PANEL: UNIT D  
MOUNT: RECESSED PHASE: 1 WIRES: 3 LOCATION: BEDROOM

BREAKER		DESCRIPTION	CKT VA	TYPE	CKT NO.	LOAD		CKT NO.	TYPE	CKT VA	DESCRIPTION	BREAKER	
A	P					A	B					P	A
50	2	RANGE	4000	O	1	4232		2	L	232	LIGHTS	1	20
50	2	RANGE	4000	O	3		4800	4	R	800	BEDROOM RECEPTACLES	1	20
20	1	RANGE HOOD	500	M	5	1500		6	R	1000	BEDROOM RECEPTACLES	1	20
20	1	REFRIGERATOR	1000	R	7		2000	8	R	1000	BEDROOM RECEPTACLES	1	20
20	1	KITCHEN RECEPTACLES	800	R	9	1800		10	R	1000	LIVINGROOM RECEPTACLES	1	20
20	1	KITCHEN RECEPTACLES	800	R	11		1400	12	R	600	HALL/EXTERIOR RECEPT	1	20
20	1	BATHROOM RECEPTACLE	400	R	13	900		14	O	500	FIRE ALARM	1	20
20	1	BATHROOM RECEPTACLE	400	R	15		900	16	O	500	DOORBELL	1	20
20	1	DISHWASHER	1500	O	17	2000		18	S	500	SPARE	1	20
20	1	SPARE	500	S	19		1000	20	S	500	SPARE	1	20
20	1	SPARE	500	S	21	1000		22	S	500	SPARE	1	20
20	1	SPARE	500	S	23		1000	24	S	500	SPARE	1	20

PHASE TOTALS						11432									
							11100								
								CIRCUIT TYPE CODES					DEMAND FACTOR		
CONNECTED VOLT-AMPERES= <u>22532</u>								L	LIGHTS						1.0
CONNECTED AMPERES= <u>94</u>								M	MOTORS						0.5
DEMAND VOLT-AMPERES= <u>11382</u>								R	RECEPTACLES						0.5
DEMAND AMPERES= <u>47</u>								H	HEAT						1.0
								O	OTHER						0.5
								S	SPARE						0.5

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VOLTS: 120/240 AMPS 100  
MOUNT: RECESSED PHASE: 1

MAIN: MLO  
WIRES: 3

PANEL: UNIT E  
LOCATION: BEDROOM

BREAKER		DESCRIPTION	CKT VA	TYPE	CKT NO.	LOAD		CKT NO.	TYPE	CKT VA	DESCRIPTION	BREAKER	
A	P					A	B					P	A
50	2	RANGE	4000	O	1	4336		2	L	336	LIGHTS	1	20
50	2	RANGE	4000	O	3		4400	4	R	400	BATHROOM RECEPTACLE	1	20
20	1	RANGE HOOD	500	M	5	1500		6	R	1000	BEDROOM RECEPTACLES	1	20
20	1	REFRIGERATOR	1000	R	7		1800	8	R	800	BEDROOM RECEPTACLES	1	20
20	1	KITCHEN RECEPTACLES	800	R	9	2000		10	R	1200	LIVINGROOM RECEPTACLES	1	20
20	1	KITCHEN RECEPTACLES	800	R	11		1400	12	R	600	HALL/EXTERIOR RECEPT	1	20
20	1	DOORBELL	500	O	13	1000		14	O	500	FIRE ALARM	1	20
20	1	DISHWASHER	1500	O	15		2000	16	S	500	SPARE	1	20
20	1	SPARE	500	S	17	1000		18	S	500	SPARE	1	20
20	1	SPARE	500	S	19		1000	20	S	500	SPARE	1	20
20	1	SPARE	500	S	21	1000		22	S	500	SPARE	1	20
20	1	SPARE	500	S	23		1000	24	S	500	SPARE	1	20
						PHASE TOTALS	10836						
								11600					

CONNECTED VOLT-AMPERES= 22436  
CONNECTED AMPERES= 93  
DEMAND VOLT-AMPERES= 11386  
DEMAND AMPERES= 47

CIRCUIT TYPE CODES		DEMAND FACTOR
L	LIGHTS	1.0
M	MOTORS	0.5
R	RECEPTACLES	0.5
H	HEAT	1.0
O	OTHER	0.5
S	SPARE	0.5

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VOLTS: 120/240 AMPS 100 MAIN: MLO PANEL: UNIT F  
MOUNT: RECESSED PHASE: 1 WIRES: 3 LOCATION: BEDROOM

BREAKER		DESCRIPTION	CKT VA	TYPE	CKT NO.	LOAD		CKT NO.	TYPE	CKT VA	DESCRIPTION	BREAKER	
A	P					A	B					P	A
50	2	RANGE	4000	O	1	4232		2	L	232	LIGHTS	1	20
50	2	RANGE	4000	O	3		4400	4	R	400	BATHROOM RECEPTACLE	1	20
20	1	RANGE HOOD	500	M	5	1300		6	R	800	BEDROOM RECEPTACLES	1	20
20	1	REFRIGERATOR	1000	R	7		1800	8	R	800	BEDROOM RECEPTACLES	1	20
20	1	KITCHEN RECEPTACLES	800	R	9	1800		10	R	1000	LIVINGROOM RECEPTACLES	1	20
20	1	KITCHEN RECEPTACLES	800	R	11		1200	12	R	400	HALL/EXTERIOR RECEPT	1	20
20	1	DOORBELL	500	O	13	1000		14	O	500	FIRE ALARM	1	20
20	1	DISHWASHER	1500	O	15		2000	16	S	500	SPARE	1	20
20	1	SPARE	500	S	17	1000		18	S	500	SPARE	1	20
20	1	SPARE	500	S	19		1000	20	S	500	SPARE	1	20
20	1	SPARE	500	S	21	1000		22	S	500	SPARE	1	20
20	1	SPARE	500	S	23		1000	24	S	500	SPARE	1	20

PHASE TOTALS	10332	11400		<b>DEMAND FACTOR</b> L LIGHTS 1.0 M MOTORS 0.5 R RECEPTACLES 0.5 H HEAT 1.0 O OTHER 0.5 S SPARE 0.5
CONNECTED VOLT-AMPERES=	21732		<b>CIRCUIT TYPE CODES</b>	
CONNECTED AMPERES=	91			
DEMAND VOLT-AMPERES=	10982			
DEMAND AMPERES=	46			

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VOLTS: 120/240 AMPS 100  
 MOUNT: RECESSED PHASE: 1

MAIN: MLO  
 WIRES: 3

PANEL: UNIT G  
 LOCATION: BEDROOM

BREAKER A P	DESCRIPTION	CKT VA	TYPE	CKT NO.	LOAD		CKT NO.	TYPE	CKT VA	DESCRIPTION	BREAKER		
					A	B					P	A	
50	2	RANGE	4000	O	1	4435		2	L	435	LIGHTS	1	20
50	2	RANGE	4000	O	3		4800	4	R	800	BEDROOM RECEPTACLES	1	20
20	1	RANGE HOOD	500	M	5	1300		6	R	800	BEDROOM RECEPTACLES	1	20
20	1	REFRIGERATOR	1000	R	7		1800	8	R	800	BEDROOM RECEPTACLES	1	20
20	1	KITCHEN RECEPTACLES	800	R	9	1800		10	R	1000	LIVINGROOM RECEPTACLES	1	20
20	1	KITCHEN RECEPTACLES	800	R	11		1400	12	R	600	HALL/EXTERIOR RECEPT	1	20
20	1	BATHROOM RECEPTACLE	400	R	13	900		14	O	500	FIRE ALARM	1	20
20	1	BATHROOM RECEPTACLE	400	R	15		900	16	O	500	DOORBELL	1	20
20	1	DISHWASHER	1500	O	17	2000		18	S	500	SPARE	1	20
20	1	SPARE	500	S	19		1000	20	S	500	SPARE	1	20
20	1	SPARE	500	S	21	1000		22	S	500	SPARE	1	20
20	1	SPARE	500	S	23		1000	24	S	500	SPARE	1	20

PHASE TOTALS    11435                      10900                      DEMAND

CONNECTED VOLT-AMPERES= 22335  
 CONNECTED AMPERES= 93  
 DEMAND VOLT-AMPERES= 11385  
 DEMAND AMPERES= 47

CIRCUIT TYPE CODES    DEMAND  
 L    LIGHTS                      1.0  
 M    MOTORS                      0.5  
 R    RECEPTACLES                0.5  
 H    HEAT                              1.0  
 O    OTHER                             0.5  
 S    SPARE                            0.5

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VOLTS: 120/240 AMPS 100 MAIN: MLO PANEL: UNIT H  
MOUNT: RECESSED PHASE: 1 WIRES: 3 LOCATION: BEDROOM

BREAKER		DESCRIPTION	CKT VA	TYPE	CKT NO.	LOAD		CKT NO.	TYPE	CKT VA	DESCRIPTION	BREAKER	
A	P					A	B					P	A
50	2	RANGE	4000	O	1	4487		2	L	487	LIGHTS	1	20
50	2	RANGE	4000	O	3		4800	4	R	800	BEDROOM RECEPTACLES	1	20
20	1	RANGE HOOD	500	M	5	1500		6	R	1000	BEDROOM RECEPTACLES	1	20
20	1	REFRIGERATOR	1000	R	7		2000	8	R	1000	BEDROOM RECEPTACLES	1	20
20	1	KITCHEN RECEPTACLES	800	R	9	1800		10	R	1000	LIVINGROOM RECEPTACLES	1	20
20	1	KITCHEN RECEPTACLES	800	R	11		2000	12	R	1200	HALL/EXTERIOR RECEPT	1	20
20	1	BATHROOM RECEPTACLE	400	R	13	900		14	O	500	FIRE ALARM	1	20
20	1	BATHROOM RECEPTACLE	400	R	15		900	16	O	500	DOORBELL	1	20
20	1	DISHWASHER	1500	O	17	2000		18	S	500	SPARE	1	20
20	1	SPARE	500	S	19		1000	20	S	500	SPARE	1	20
20	1	SPARE	500	S	21	1000		22	S	500	SPARE	1	20
20	1	SPARE	500	S	23		1000	24	S	500	SPARE	1	20

PHASE TOTALS 11687

11700

CONNECTED VOLT-AMPERES= 23387  
CONNECTED AMPERES= 97  
DEMAND VOLT-AMPERES= 11937  
DEMAND AMPERES= 50

CIRCUIT TYPE CODES		DEMAND FACTOR
L	LIGHTS	1.0
M	MOTORS	0.5
R	RECEPTACLES	0.5
H	HEAT	1.0
O	OTHER	0.5
S	SPARE	0.5

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VOLTS: 120/240 AMPS 100  
 MOUNT: RECESSED PHASE: 1

MAIN: MLO  
 WIRES: 3

PANEL: UNIT J  
 LOCATION: BEDROOM

BREAKER		DESCRIPTION	CKT VA	TYPE	CKT NO.	LOAD		CKT NO.	TYPE	CKT VA	DESCRIPTION	BREAKER	
A	P					A	B					P	A
50	2	RANGE	4000	O	1	4310		2	L	310	LIGHTS	1	20
50	2	RANGE	4000	O	3		4400	4	R	400	BATHROOM RECEPTACLE	1	20
20	1	RANGE HOOD	500	M	5	1500		6	R	1000	BEDROOM RECEPTACLES	1	20
20	1	REFRIGERATOR	1000	R	7		1800	8	R	800	BEDROOM RECEPTACLES	1	20
20	1	KITCHEN RECEPTACLES	800	R	9	1800		10	R	1000	LIVINGROOM RECEPTACLES	1	20
20	1	KITCHEN RECEPTACLES	800	R	11		1200	12	R	400	HALL/EXTERIOR RECEPT	1	20
20	1	DOORBELL	500	O	13	1000		14	O	500	FIRE ALARM	1	20
20	1	DISHWASHER	1500	O	15		2000	16	S	500	SPARE	1	20
20	1	SPARE	500	S	17	1000		18	S	500	SPARE	1	20
20	1	SPARE	500	S	19		1000	20	S	500	SPARE	1	20
20	1	SPARE	500	S	21	1000		22	S	500	SPARE	1	20
20	1	SPARE	500	S	23		1000	24	S	500	SPARE	1	20
PHASE TOTALS						10610							

	11400		DEMAND
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CONNECTED VOLT-AMPERES= 22010  
 CONNECTED AMPERES= 92  
 DEMAND VOLT-AMPERES= 11160  
 DEMAND AMPERES= 47

CIRCUIT TYPE CODES		DEMAND FACTOR
L	LIGHTS	1.0
M	MOTORS	0.5
R	RECEPTACLES	0.5
H	HEAT	1.0
O	OTHER	0.5
S	SPARE	0.5

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VOLTS:	<u>120/240</u>	AMPS	<u>100</u>	MAIN:	<u>MLO</u>	PANEL:	<u>UNIT K</u>
MOUNT:	<u>RECESSED</u>	PHASE:	<u>1</u>	WIRES:	<u>3</u>	LOCATION:	<u>BEDROOM</u>

BREAKER		DESCRIPTION	CKT VA	TYPE	CKT NO.	LOAD		CKT NO.	TYPE	CKT VA	DESCRIPTION	BREAKER	
A	P					A	B					P	A
50	2	RANGE	4000	O	1	4336		2	L	336	LIGHTS	1	20
50	2	RANGE	4000	O	3		4400	4	R	400	BATHROOM RECEPTACLE	1	20
20	1	RANGE HOOD	500	M	5	1300		6	R	800	BEDROOM RECEPTACLES	1	20
20	1	REFRIGERATOR	1000	R	7		1800	8	R	800	BEDROOM RECEPTACLES	1	20
20	1	KITCHEN RECEPTACLES	800	R	9	1800		10	R	1000	LIVINGROOM RECEPTACLES	1	20
20	1	KITCHEN RECEPTACLES	800	R	11		1200	12	R	400	HALL/EXTERIOR RECEPT	1	20
20	1	DOORBELL	500	O	13	1000		14	O	500	FIRE ALARM	1	20
20	1	SPARE	500	S	15		2000	16	R	1500	DISHWASHER	1	20
20	1	SPARE	500	S	17	1000		18	S	500	SPARE	1	20
20	1	SPARE	500	S	19		1000	20	S	500	SPARE	1	20
20	1	SPARE	500	S	21	1000		22	S	500	SPARE	1	20
20	1	SPARE	500	S	23		1000	24	S	500	SPARE	1	20

PHASE TOTALS	10436	11400	DEMAND	
CONNECTED VOLT-AMPERES=	<u>21836</u>		CIRCUIT TYPE CODES	
CONNECTED AMPERES=	<u>91</u>		L LIGHTS	1.0
DEMAND VOLT-AMPERES=	<u>11086</u>		M MOTORS	0.5
DEMAND AMPERES=	<u>46</u>		R RECEPTACLES	0.5
			H HEAT	1.0
			O OTHER	0.5
			S SPARE	0.5

PROJECT: **PEARL PLACE**  
 PROJ. NO: 05-0017b  
 DATE: 09/01/06  
 STATUS: FOR CONSTRUCTION

**Bartlett Design**  
**LIGHTING & ELECTRICAL ENGINEERING**  
 942 WASHINGTON STREET BATH, MAINE 04530  
 TEL (207) 443-5447 FAX (207) 443-5560

VOLTS: 120/240 AMPS 30  
MOUNT: SURFACE PHASE: 1

MAIN: MLO  
WIRES: 3

PANEL: EP-1  
LOCATION: MAINTENANCE STOR 1-B08

BREAKER		DESCRIPTION	CKT VA	TYPE	CKT NO.	LOAD		CKT NO.	TYPE	CKT VA	DESCRIPTION	BREAKER	
A	P					A	B					P	A
20	1	STAIRWELL LIGHTS	504	L	1	1773		2	L	1269	BASEMENT LIGHTS	1	20
20	1	CORRIDOR NIGHT LIGHTS	117	L	3		1167	4	L	1050	1ST/2ND/3RD FL CORR LTS	1	20
		SPACE			5	0		6			SPACE		
		SPACE			7		0	8			SPACE		
		SPACE			9	0		10			SPACE		
		SPACE			11		0	12			SPACE		
PHASE TOTALS						1773		1167					

CONNECTED VOLT-AMPERES= 2940  
CONNECTED AMPERES= 12  
DEMAND VOLT-AMPERES= 2940  
DEMAND AMPERES= 12

CIRCUIT TYPE CODES		DEMAND FACTOR
L	LIGHTS	1.0
M	MOTORS	0.5
R	RECEPTACLES	0.5
H	HEAT	1.0
O	OTHER	0.5
S	SPARE	0.5

PROJECT: **PEARL PLACE**  
PROJ. NO: 05-0017b  
DATE: 09/01/06  
STATUS: FOR CONSTRUCTION

**Bartlett Design**  
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942 WASHINGTON STREET BATH, MAINE 04530  
TEL (207) 443-5447 FAX (207) 443-5560

VOLTS: 120/208 AMPS 225  
MOUNT: SURFACE PHASE: 3

MAIN: MLO  
WIRES: 4

PANEL: HP-1A  
LOCATION: MAINTENANCE STOR 1-B08

BREAKER		DESCRIPTION	CKT VA	TYPE	CKT NO.	LOAD			CKT NO.	TYPE	CKT VA	DESCRIPTION	BREAKER	
A	P					A	B	C					P	A
20	1	FIRE ALARM PANEL	500	O	1	1000			2	O	500	DOOR INTERCOM	1	20
20	1	RECEPTACLES	1200	R	3		3700		4	O	2500	DRYER	2	30
20	1	REFRIGERATOR	1000	R	5			3500	6	O	2500	DRYER	2	30
20	1	RECEPTACLES	400	R	7	2900			8	O	2500	DRYER	2	30
20	1	RECEPTACLES	400	R	9		2900		10	O	2500	DRYER	2	30
20	1	RECEPTACLES	800	R	11			3300	12	O	2500	DRYER	2	30
20	1	RECEPTACLES	1000	R	13	3500			14	O	2500	DRYER	2	30
20	1	RECEPTACLES	1200	R	15		2200		16	O	1000	WASHER	1	20
20	1	ELEVATOR PIT	500	R	17			1500	18	O	1000	WASHER	1	20
20	1	ELEVATOR MACH ROOM	500	R	19	1500			20	O	1000	WASHER	1	20
20	1	ELEVATOR CONTROLS	500	O	21		1000		22	S	500	SPARE	1	20
20	1	SECOND FL RECEPTACLES	1000	R	23			1500	24	S	500	SPARE	1	20
20	1	THIRD FL RECEPTACLES	1000	R	25	1500			26	S	500	SPARE	1	20
20	1	FOURTH FL RECEPTACLES	1000	R	27		2000		28	O	1000	COIN MACHINE	1	20
20	1	RECEPTACLES	1200	R	29			1700	30	S	500	SPARE	1	20
20	1	LIGHTING CONTROL PNL	500	O	31	692			32	L	192	GARAGE NIGHT LIGHTS	1	20
20	1	TELEPHONE EQUIPMENT	500	O	33		1230		34	L	730	GARAGE & BLD MTD LTS	1	20
30	2	PANEL EP-1	1773		35			2273	36	S	500	SPARE	1	20
30	2	PANEL EP-1	1167		37	1667			38	S	500	SPARE	1	20
20	1	SPARE	500	S	39		1000		40	S	500	SPARE	1	20
20	1	SPARE	500	S	41			1000	42	S	500	SPARE	1	20
PHASE TOTALS						12759	14030	14773						

CONNECTED VOLT-AMPERES= 41562  
CONNECTED AMPERES= 115  
DEMAND VOLT-AMPERES= 22712  
DEMAND AMPERES= 63

CIRCUIT TYPE CODES		DEMAND FACTOR
L	LIGHTS	1.0
M	MOTORS	0.5
R	RECEPTACLES	0.5
H	HEAT	1.0
O	OTHER	0.5
S	SPARE	0.5

PROJECT: **PEARL PLACE**  
PROJ. NO: 05-0017b  
DATE: 09/01/06  
STATUS: FOR CONSTRUCTION

**Bartlett Design**  
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942 WASHINGTON STREET BATH, MAINE 04530  
TEL (207) 443-5447 FAX (207) 443-5560

VOLTS: 120/208 AMPS 225  
MOUNT: SURFACE PHASE: 3

MAIN: MLO  
WIRES: 4

PANEL: HP-1B  
LOCATION: MAINTENANCE STOR 1-B08

BREAKER		DESCRIPTION	CKT VA	TYPE	CKT NO.	LOAD			CKT NO.	TYPE	CKT VA	DESCRIPTION	BREAKER	
A	P					A	B	C					P	A
20	1	B-1 CONTROLS	500	M	1	1821			2	M	1321	P-1	3	20
20	1	B-2	960	M	3		2281		4	M	1321	P-1	3	20
15	1	P-6	864	M	5			2185	6	M	1321	P-1	3	20
15	1	P-7	864	M	7	2185			8	M	1321	P-2	3	20
15	1	P-8	864	M	9		2185		10	M	1321	P-2	3	20
20	1	MOTOR OPER DAMPERS	300	M	11			1621	12	M	1321	P-2	3	20
20	1	CUH-1, CUH-2, CUH-3	450	M	13	2552			14	M	2102	P-3	3	35
15	1	UV-1 (ALT #1)	528	M	15		2630		16	M	2102	P-3	3	35
20	3	P-5	1321	M	17			3423	18	M	2102	P-3	3	35
20	3	P-5	1321	M	19	3423			20	M	2102	P-4	3	35
20	3	P-5	1321	M	21		3423		22	M	2102	P-4	3	35
20	2	B-1	1144	M	23			3246	24	M	2102	P-4	3	35
20	2	B-1	1144	M	25	1378			26	M	234	EF-1, EF-2, EF-3	1	20
20	2	CC-1 (ALT #1)	1248	M	27		4251		28	M	3003	HRU-1	3	50
20	2	CC-1 (ALT #1)	1248	M	29			4251	30	M	3003	HRU-1	3	50
15	1	EF-4, SF-1	500	M	31	3503			32	M	3003	HRU-1	3	50
20	1	UH-1, UH-2, UH-3	450	M	33		950		34	S	500	SPARE	1	20
20	1	SPARE	500	S	35			1000	36	S	500	SPARE	1	20
20	1	SPARE	500	S	37	1000			38	S	500	SPARE	1	20
20	1	SPARE	500	S	39		1000		40	S	500	SPARE	1	20
20	1	SPARE	500	S	41			1000	42	S	500	SPARE	1	20

PHASE TOTALS 15862 16720 16726

CONNECTED VOLT-AMPERES= 49308  
CONNECTED AMPERES= 137  
DEMAND VOLT-AMPERES= 24654  
DEMAND AMPERES= 68

CIRCUIT TYPE CODES DEMAND FACTOR  
L LIGHTS 1.0  
M MOTORS 0.5  
R RECEPTACLES 0.5  
H HEAT 1.0  
O OTHER 0.5  
S SPARE 0.5

PROJECT: **PEARL PLACE**  
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942 WASHINGTON STREET BATH, MAINE 04530  
TEL (207) 443-5447 FAX (207) 443-5560

VOLTS: 120/240      AMPS 30  
 MOUNT: SURFACE      PHASE: 1

MAIN: MLO  
 WIRES: 3

PANEL: EP-2A  
 LOCATION: MECHANICAL 2-111

BREAKER		DESCRIPTION	CKT VA	TYPE	CKT NO.	LOAD		CKT NO.	TYPE	CKT VA	DESCRIPTION	BREAKER	
A	P					A	B					P	A
20	1	FIRE ALARM PANEL	500	O	1	4500		2	L	4000	GENERATOR PANEL	2	60
20	1	TELEPHONE EQUIPMENT	500	R	3		4500	4	L	4000	GENERATOR PANEL	2	60
20	1	ELEVATOR PIT	500	R	5	1000		6	S	500	SPARE	1	20
20	1	ELEVATOR MACH ROOM	500	R	7		1000	8	S	500	SPARE	1	20
20	1	ELEVATOR CONTROLS	500	O	9	1000		10	S	500	SPARE	1	20
20	1	SPARE	500	S	11		1000	12	S	500	SPARE	1	20

PHASE TOTALS    6500

6500

DEMAND

CONNECTED VOLT-AMPERES= 13000  
 CONNECTED AMPERES= 54  
 DEMAND VOLT-AMPERES= 10500  
 DEMAND AMPERES= 44

CIRCUIT TYPE CODES		DEMAND FACTOR
L	LIGHTS	1.0
M	MOTORS	0.5
R	RECEPTACLES	0.5
H	HEAT	1.0
O	OTHER	0.5
S	SPARE	0.5

PROJECT:            **PEARL PLACE**  
 PROJ. NO:            05-0017b  
 DATE:                09/01/06  
 STATUS:            FOR CONSTRUCTION

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 942 WASHINGTON STREET BATH, MAINE 04530  
 TEL (207) 443-5447 FAX (207) 443-5560



VOLTS: 120/240 AMPS 30  
 MOUNT: SURFACE PHASE: 1

MAIN: MLO  
 WIRES: 3

PANEL: EP-2B  
 LOCATION: MECHANICAL 2-111

BREAKER		DESCRIPTION	CKT VA	TYPE	CKT NO.	LOAD		CKT NO.	TYPE	CKT VA	DESCRIPTION	BREAKER	
A	P					A	B					P	A
20	1	STAIRWELL LIGHTS	828	L	1	1867		2	L	1039	1ST/2ND FLOOR CORR LTS	1	20
20	1	CORRIDOR NIGHT LIGHTS	208	L	3		1202	4	L	994	3RD/4TH/5TH FL CORR LTS	1	20
		BLANK			5	0		6			BLANK		
		BLANK			7			8			BLANK		
		BLANK			9	0		10			BLANK		
		BLANK			11			12			BLANK		
PHASE TOTALS						1867		1202					

CONNECTED VOLT-AMPERES= 3069  
 CONNECTED AMPERES= 13  
 DEMAND VOLT-AMPERES= 3069  
 DEMAND AMPERES= 13

CIRCUIT TYPE CODES		DEMAND FACTOR
L	LIGHTS	1.0
M	MOTORS	0.5
R	RECEPTACLES	0.5
H	HEAT	1.0
O	OTHER	0.5
S	SPARE	0.5

PROJECT: **PEARL PLACE**  
 PROJ. NO: 05-0017b  
 DATE: 09/01/06  
 STATUS: FOR CONSTRUCTION

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 942 WASHINGTON STREET BATH, MAINE 04530  
 TEL (207) 443-5447 FAX (207) 443-5560

VOLTS: 120/208 AMPS 225  
MOUNT: SURFACE PHASE: 3

MAIN: MLO  
WIRES: 4

PANEL: HP-2A  
LOCATION: LAUNDRY 2-106

BREAKER		DESCRIPTION	CKT VA	TYPE	CKT NO.	LOAD			CKT NO.	TYPE	CKT VA	DESCRIPTION	BREAKER	
A	P					A	B	C					P	A
20	1	DOOR INTERCOM	500	O	1	3000			2	O	2500	DRYER	2	30
20	1	DOOR INTERCOM	500	O	3		3000		4	O	2500	DRYER	2	30
20	1	RECEPTACLES	1000	R	5			3500	6	O	2500	DRYER	2	30
20	1	RECEPTACLES	600	R	7	3100			8	O	2500	DRYER	2	30
20	1	RECEPTACLES	1000	R	9		3500		10	O	2500	DRYER	2	30
20	1	SPARE	500	S	11			3000	12	O	2500	DRYER	2	30
20	1	SPARE	500	S	13	1500			14	O	1000	WASHER	1	20
20	1	SPARE	500	S	15		1500		16	O	1000	WASHER	1	20
20	1	RECEPTACLES	1000	R	17			2000	18	O	1000	WASHER	1	20
20	1	RECEPTACLES	1000	R	19	1500			20	S	500	SPARE	1	20
20	1	RECEPTACLES	1000	R	21		1500		22	S	500	SPARE	1	20
20	1	WASHER	1000	O	23			1500	24	S	500	SPARE	1	20
20	1	WASHER	1000	O	25	1500			26	S	500	SPARE	1	20
20	1	COIN MACHINE	1000	O	27		1500		28	L	500	BUILDING MTD LIGHTS	1	20
20	1	LIGHTING CONTROL PANEL	500	O	29			3000	30	O	2500	DRYER	2	30
20	1	RECEPTACLES	800	R	31	3300			32	O	2500	DRYER	2	30
20	1	EXTERIOR RECEPTACLES	1000	R	33		3500		34	O	2500	DRYER	2	30
20	1	SPARE	500	S	35			3000	36	O	2500	DRYER	2	30
70	3	PANEL HP-2B	6203		37	6703			38	S	500	SPARE	1	20
70	3	PANEL HP-2B	6339		39		6839		40	S	500	SPARE	1	20
70	3	PANEL HP-2B	6471		41			6971	42	S	500	SPARE	1	20

PHASE TOTALS 20603 21339 22971

CONNECTED VOLT-AMPERES= 64913  
CONNECTED AMPERES= 180  
DEMAND VOLT-AMPERES= 33827  
DEMAND AMPERES= 94

DEMAND FACTOR

CIRCUIT TYPE CODES

L LIGHTS 1.0  
M MOTORS 0.5  
R RECEPTACLES 0.5  
H HEAT 1.0  
O OTHER 0.5  
S SPARE 0.5

PROJECT: **PEARL PLACE**  
PROJ. NO: 05-0017b  
DATE: 09/01/06  
STATUS: FOR CONSTRUCTION

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942 WASHINGTON STREET BATH, MAINE 04530  
TEL (207) 443-5447 FAX (207) 443-5560

VOLTS: 120/208      AMPS 100  
MOUNT: SURFACE      PHASE: 3

MAIN: MLO  
WIRES: 4

PANEL: **HP-2B**  
LOCATION: LAUNDRY 2-106

BREAKER		DESCRIPTION	CKT VA	TYPE	CKT NO.	LOAD			CKT NO.	TYPE	CKT VA	DESCRIPTION	BREAKER	
A	P					A	B	C					P	A
20	1	CUH-4, CUH-5	300	H	1	3303			2	M	3003	HRU-2	3	50
20	1	EF-5, EF-6	236	M	3		3239		4	M	3003	HRU-2	3	50
15	1	EF-7	528	M	5			3531	6	M	3003	HRU-2	3	50
20	1	SPARE	500	S	7	1000			8	L	500	BUILDING MTD LIGHTS	1	20
20	1	EXTERIOR LIGHTS	600	L	9		1100		10	S	500	SPARE	1	20
20	2	EXTERIOR LIGHTS	440	L	11			940	12	S	500	SPARE	1	20
20	2	EXTERIOR LIGHTS	400	L	13	900			14	S	500	SPARE	1	20
20	1	SPARE	500	S	15		1000		16	S	500	SPARE	1	20
20	1	SPARE	500	S	17			1000	18	S	500	SPARE	1	20
20	1	SPARE	500	S	19	1000			20	S	500	SPARE	1	20
20	1	SPARE	500	S	21		1000		22	S	500	SPARE	1	20
20	1	SPARE	500	S	23			1000	24	S	500	SPARE	1	20

PHASE TOTALS						6203	6339	6471						
CONNECTED VOLT-AMPERES= <u>19013</u>														
CONNECTED AMPERES= <u>53</u>														
DEMAND VOLT-AMPERES= <u>10627</u>														
DEMAND AMPERES= <u>29</u>														
												DEMAND		
												FACTOR		
												L	LIGHTS	1.0
												M	MOTORS	0.5
												R	RECEPTACLES	0.5
												H	HEAT	1.0
												O	OTHER	0.5
												S	SPARE	0.5

PROJECT: **PEARL PLACE**  
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