





















[illegible]


































	คำย่อ
A	AMPERE
AT	AMPERERE TRIP
AF	AMPERERE FRAM
ATS	AUTOMATIC TRANSFER SWITCH
A/C	AIRCONITION
ACB	AIR CIRCUIT BREAKER
AHU	AIR HANDING UNIT
CH	SPRING CHARGER IS SEPARATE
CT	CURRENT TRANSFORMER
CAP	CAPACITOR
CB	CIRCUIT BREAKER
CKT	CIRCUIT BOARD
DB	DISTRIBUTION
DB—A/C	DISTRIBUTION BOARD FOR AIRCONITION
DB—SN	DISTRIBUTION BOARD FOR SANITARY
DB—MD	DISTRIBUTION BOARD FOR MIDICAL GAS
ECP	ENERGY CONTROL PANEL
EMDB	EMERGENCY MAIN DISTRIBUTION BOARD
EPB	EMERGENCY PANEL BOARD
EMT	ELECTRICAL METALLIC TUBING
FCU	FAN COIL UNIT
GCP	GENERATOR CONTROL PANEL
GFP	GROUND FAULT PROTECTION
HV	HIGH VOLTAGE
IC	INTERRUPTING CAPACITY
IMC	INTERMEDIATE METAL CONDUIT
IP	INDEX OF PROTECTION
KV	KILO VOLTAGE
KVA	KILO VOLTAGE AMPERE
KW	KILOWATT
LP	LITING PANEL BOARD
LV	LOW VOLTAGE



















คำย่อ	
LB	LOAD BREAK SWITCH
MDB	MAN DISTRIBUTION BOARD
MDB—U	MAN DISTRIBUTION U.P.S
MCCB	MOLDED CASE CIRCUIT BREAKER
MCB	MANIATURE CIRCUIT BREAKER
ON	CIRCUIT BREAKER OPEN
OV	OVER VOLTAGE
NEMA	NATIONAL ELECTRICAL MANUFACTURES ASSOCIATION
PB	PANEL BOARD
PT	POTENTIAL TRANSFORMER
SPEC	SPECIFICATION
SW	SWITCH ,SDB—A/C SUB DISTRIBUTION AIRCONDITION
TYP	TYPICAL
TR	POWER TRANSFORMER
UV	UNDER VOLTAGE
V	VOLTAGE
WP	WEATHER PROOF






สัญลักษณ์และไฟฟ้ากำลัง	
SYMBOL	DESCRIPTION
	HIGH VOLTAGE LOAD BREAK SWITCH
	HIGH VOLTAGE CIRCUIT BREAKER FIXED TYPE
	HIGH VOLTAGE CIRCUIT BREAKER DRAWN OUT TYPE
	HIGH VOLTAGE FUSE
	EARTHING SWITCH
	HIGH TENSION TERMINATOR
	ENCASED CONCRETE SLEEVE ACROSS THE ROAD
	HIGH TENSION CONCRETE POLE
	LOW TENSION CONCRETE POLE
	MANHOLE
	HANDHOLE
	PULL BOX
	GENERATOR SET WITH CONTROL PANEL BOARD
	LIGHTNING ARRESTER
	POWER TRANSFORMER
	POTENTIAL TRANSFORMER
	CURRENT TRANSFORMER
	BATTERY
	LOW VOLTAGE HRC FUSE
	SURGE VOLTAGE
	LIGHTNING CURRENT ARRESTER
	GROUND ROD
	GROUND FAULT SENSOR & RELAY : USING WINDOW TYPE CURRENT TRANSFORMER WITH TIME DELAY
	LOW VOLTAGE CIRCUIT BREAKER DRAWN OUT TYPE
	CIRCUIT BREAKER , FIXED TYPE
	CIRCUIT BREAKER , PLUG-IN TYPE
	DISCONNECTING SWITCH WITH HRC FUSE
	CONTROL FUSE
	MOTOR OPERATION
	KILOWATT HOUR & WATT HOUR METER
	KILOVAR OR WATT METER
	KILOVAR OR VAR METER










	HOUR COUNTER METER
	KILOVAR CONTROLLER FOR POWER FACTOR IMPROVEMENT
	POWER FACTOR METER
	AMMETER
	AMMETER
	VOLTMETER
	AMMETER SELECTOR
	VOLTMETER SELECTOR
	FREQUENCY METER
	PILOT LAMP
	PUSH BUTTON P. 250 V. 10 A.
	FAN SELECTOR SWITCH
	SWITCH BOX
	SHUNT TRIP
	ASYMMETRICAL RELAY
	UNDERVOLTAGE RELAY
	UNDERVOLTAGE RELAY
	UNDERVOLTAGE RELAY
	PHASE SEQUENCE VOLTAGE RELAY
	TRANSFORMER TEMPERATURE RELAY, ALARM CONDITION
	TRANSFORMER TEMPERATURE RELAY, TRIPPING CONDITION
	OVERCURRENT AND INSTANTANEOUS TRIP RELAY
	OVERCURRENT GROUND FAULT RELAY
	OVERVOLTAGE RELAY
	GAS OR BUCHHOLZ RELAY, ALARM CONDITION
	GAS OR BUCHHOLZ RELAY, TRIPPING CONDITION
	NO VOLTAGE RELEASE TRIP COIL
	UNDERVOLTAGE RELEASE TRIP COIL
	TRIPPING COIL OR SHUNT TRIP COIL
	CLOSING COIL
	KEY INTERLOCK
	CONCEAL CONDUIT AND BOX INSTALLATION
	EXHAUST FAN 220 VAC
	CAPACITOR

สัญลักษณ์ไฟฟ้ากำลัง	
SYMBOL	DESCRIPTION
 OR 	NORMALLY OPENED (NO) CONTACT
 OR 	NORMALLY CLOSED (NC) CONTACT
	OPERATING COIL FOR RELAY OR MAGNETIC CONTRACTOR
 OR 	OVERLOAD RELAY (THERMAL ELEMENT)
	ELECTRICAL CONTROLLED 3 POLE CONTACTOR
	MAIN DISTRIBUTION BOARD OR EMERGENCY MAIN DISTRIBUTION BOARD
	DISTRIBUTION BOARD OR EMERGENCY DISTRIBUTION
	LOAD PANEL BOARD OR LOAD CENTER BOARD
	CONSUMER UNITS
 OR 	FUSED DISCONNECTING SWITCH FOR NORMAL LOAD OR ESSENTIAL
	NON FUSED DISCONNECTING SWITCH FOR NORMAL LOAD OR ESSENTIAL
	AIR-CONDITIONING MOTOR CONTROL CENTER BOARD
	SANITARY MOTOR CONTROL CENTER BOARD
	AIR-CONDITIONING PANELBOARD LOCATED AT X th FLOOR, NUMBER Y _
	SANITARY PANELBOARD LOCATED AT X th FLOOR, NUMBER Y _
	CIRCUIT BREAKER W/ ENCLOSURE















	PLUG IN UNIT
	METERING CUBICLE
	PULL BOX , JUNCTION BOX
	JUNCTION BOX MOUNTED ABOVE CEILING LEVEL
	JUNCTION BOX FOR AIR CONDITION
	JUNCTION BOX FOR WATER HEAT
	JUNCTION BOX FOR EXHAUST FAN
	FLOOR JUNCTION BOX
	DUPLEX OUTLET UNIVERSAL WITH GROUND 2P+G. 250V. 10A.
	DUPLEX OUTLET UNIVERSAL WITH GROUND 2P+G. 250V. 10A. WEATHER PROOF TYPE
	SIMPLEX RECEPTACLE WITH GROUND 250V. 10A.
	FLOOR DUPLEX RECEPTACLE WITH GROUND 250V. 10A.
	FLOOR SIMPLEX RECEPTACLE WITH GROUND 250V. 10A.
	WIRING IN CONDUIT RECESSED IN CEILING OR WALL OR EXPOSED WIRING
	WIRING IN CONDUIT BURED IN GROUND OR CONCRETE SLAB
	WIRING WITH 2 CONDUCTORS (FOR LIGHTING CIRCUIT) OR 2 CONDUCTORS AND GROUNDING CONDUCTOR (FOR RECEPTACLE CIRCUIT) IN 1/2 INCH. DIA. CONDUIT
	WIRING WITH 3 CONDUCTORS (FOR LIGHTING CIRCUIT) OR 3 CONDUCTORS AND GROUNDING CONDUCTOR (FOR RECEPTACLE CIRCUIT) IN 1/2 INCH. DIA. CONDUIT
	WIRING WITH "X" CONDUCTORS (FOR LIGHTING CIRCUIT) OR "X" CONDUCTORS AND GROUNDING CONDUCTOR (FOR RECEPTACLE CIRCUIT) IN "Y" INCH. DIA. CONDUIT
	HOME RUN TO CIRCUIT NUMBER "X","Y" AND "Z" IN PANEL "A"
	WIRING TO SWITCH "X" OR PUSH BUTTON "X"
	AC-DC CONVERTER OR RECTIFIER
	DC-AC CONVERTER OR INVERTER
	S LIGHTING SWITCH 250V. 15A.
	SWP LIGHTING SWITCH WEATHER PROOF 250V. 15A.
	S3 3 WAY SWITCH 250V. 15A.
	S4 4 WAY SWITCH 250V. 15A.
	Sk KEY-OPERATED SWITCH
	SP,SF SWITCH & PILOT LAMP
	DS DIMMER SWITCH
	AMCC AIR CONDITION MOTOR CONTROL CENTER
	SMCC SANITARY MOTOR CONTROL CENTER
	ACP AIR CONDITIONING CONTROL PANEL
	So OR Sb LIGHTING SWITCH(SUBSCRIPT(g or b) INDICATED THAT SWITCH IS PROVIDED TO ON/OFF LIGHTING FIXTURE(S) OR OTHERS DENOTED BY THE SAME LETTER













ระบบแจ้งเหตุเพลิงไหม้	
SYMBOL	DESCRIPTION
	FIRE ALARM CONTROL PANEL
	GRAPHIC ANNUNCIATOR BOARD
	REMOTE GRAPHIC ANNUNCIATOR BOARD, LOCATED AT X
	FIRE ALARM TERMINAL BOX
	ISOLATE MODULE
	DETECTOR MODULE
	CONTROL MODULE
	MONITOR MODULE
	MANUAL PULL STATION
	FIRE MANUAL STATION
	FIRE & TELEPHONE JACK
	FIRE ALARM BELL
	HEAT DETECTOR (RATE OF RISE)
	HEAT DETECTOR
	PHOTO ELECTRIC SMOKE DETECTOR
	PHOTO ELECTRIC SMOKE DETECTOR (REMOTE INDICATING LAMP)
	DUCT SMOKE DETECTOR (BY ME)
	PROJECTED BEAM SMOKE DETECTOR : TRANSMITTER DEVICE
	PROJECTED BEAM SMOKE DETECTOR : RECEIVER DEVICE
	SPEAKER (VARIABLE TAPS) 2W. W/ STROBE LIGHT
	SUPERVISORY SWITCH (BY ME)
	FLOW SWITCH (BY ME)
	END OF LINE RESISTANCE
	LAMP DISPLAY STATUS
	FLASH LIGHT
	SUBSCRIPTION FOR ADDRESSABLE DEVICE
	REMOTE LAMP


ระบบไฟฟ้าแสงสว่าง	
SYMBOL	DESCRIPTION
	FL(T8) 2x36W.
	FL(T8) 3x18W.
	DOWN LIGHT ๕๖ E 27 1X18 W กระจากใต้
	DOWN LIGHT ๕๖ E 27 2X18 W กระจากใต้พื้นทรายตรงกลาง
	DOWN LIGHT ๕๖ E 27 1X18 W กระจากใต้พื้นทรายตรงกลาง

ระบบสายดินและป้องกันฟ้าผ่า	
SYMBOL	DESCRIPTION
	EARLY STREAMER EMISSION
	ARTERIAL 5/8"x750 mm.
	EXOTHERMIC CONNECTION
	GROUNDING CONDUCTOR RUN TO GROUNDING SYSTEM
	GROUND ROD 5/8"x10'
	GROUND BAR /W COVER
	GROUND TEST BOX
	GROUND PIT
	GROUND PIT /W GROUND ROD 5/8"x10'

สัญลักษณ์ บ้ายทางออกฉุกเฉิน	
SYMBOL	DESCRIPTION
	EXIT SIGN BACK UP TIME 2 HR. (APPROVE BY ELECTRICAL ENGINEER)
	EXIT SIGN ,WALL MOUNTED
	EXIT SIGN ,CEILING MOUNTED
	EXIT SIGN ,RECESSED IN WALL
	EXIT SIGN ,PENDENT MOUNTED
	EXIT SIGN ,LOW LEVEL, RECESSED IN WALL
	EMERGENCY LIGHT HALOGEN (2x55W.)
	EMERGENCY LIGHT HALOGEN (2x55W.) SEPARUTE BATTERY

ระบบโทรคมนาคม	
SYMBOL	DESCRIPTION
	SUB DISTRIBUTION FRAME
	PRIVATE AUTOMATIC BRANCH EXCHANGE
	ATTENDANT CONSOLE
	MAIN DISTRIBUTION FRAME
	TELEPHONE CENTER BOX FOR EACH FLOOR W/TERMINAL
	TELEPHONE HANDHOLE
	SIMPLEX TELEPHONE OUTLET FLUSH MOUNTED ON WALL AT+0.3M ABOVE FINISHED FLOOR (UNLESS OTHER WISE INDICATED) RJ11
	DUPLEX TELEPHONE OUTLET FLUSH MOUNTED ON WALL AT+0.3M ABOVE FINISHED FLOOR (UNLESS OTHER WISE INDICATED) RJ11
	SIMPLEX POP UP TELEPHONE OUTLET FLUSH MOUNTED ON WALL AT+0.3M ABOVE FINISHED FLOOR (UNLESS OTHER WISE INDICATED) RJ11
	DUPLEX POP UP TELEPHONE OUTLET FLUSH MOUNTED ON WALL AT+0.3M ABOVE FINISHED FLOOR (UNLESS OTHER WISE INDICATED) RJ11
	SIMPLEX OUTLET RJ45 CAT5 FACE PLATE
	4C-0.65mm.TEVE IN PARTITION OR IN CONDUIT 1/2" EMT OR IN WALL OR ON CEILING
	5C-0.65mm.TEVE IN PARTITION OR IN CONDUIT 3/4" EMT OR IN WALL OR ON CEILING
	10C-0.65mm.TEVE IN PARTITION OR IN CONDUIT 1" EMT OR IN WALL OR ON CEILING

ระบบเสียงประกาศ	
SYMBOL	DESCRIPTION
 PA	PUBLIC ADDRESS CONTROL RACK
	SOUND TERMINAL BOX
 OTB	OVERIDE TERMINAL BOX FOR EMERGENCY PAGINGS
 TAPE	TAPE
 CD/MP3	CD/MP3
	MICROPHONE FIXED TYPE
	POWER AMPLIFIER
	CEILING LOUD SPEAKER 3 W.(6,-3,-15,-0.75W.)
	CEILING LOUD SPEAKER 3 W.(6,-3,-15,-0.75W.) W/ PULL BOX
	HORN SPEAKER 15 WATT
	CEILING 2-WAY LOUD SPEAKER 20 W.
	VOLUME CONTROLLER ,

 <p style="font-weight: bold; font-size: 1.2em;">อพวช. N S M</p> <p style="font-size: 0.8em;">องค์การพิพิธภัณฑ์วิทยาศาสตร์แห่งชาติ</p>	
โครงการ	
<p style="font-size: 1.1em;">งานปรับปรุงชุดรับส่งตู้ไมเนไฟฟ้า (LDP)</p> <p style="font-size: 1.1em;">องค์การพิพิธภัณฑ์วิทยาศาสตร์</p> <p style="font-size: 0.9em;">องค์การพิพิธภัณฑ์วิทยาศาสตร์แห่งชาติ เทคโนโลยี อ.คลองห้า อ.คลองหลวง จ.ปทุมธานี</p>	
กองการสถานที่	
<p style="font-size: 1.1em;">เวชยันต์ จารุเพ็ง</p>	
สถาปัตยกรรม	
<p style="font-size: 1.1em;">เวชยันต์ จารุเพ็ง</p> <p style="font-size: 1.1em;">กฤษฎี ก้าวงค์</p>	
โครงสร้าง/โยธา	
-	
ระบบไฟฟ้า/สื่อสาร	
<p style="font-size: 1.1em;">อมร ฐาลารี</p>	
ระบบเครื่องกล	
-	
ระบบสุขาภิบาล	
-	
แก้ไข	
วัน/เดือน/ปี	คำอธิบาย
20/03/2561	สำหรับการเสนอราคา
แบบแปลน	
<p style="font-size: 1.1em;">LIST OF DRAWINGS & SYMBOLS, ABBREVIATIONS</p>	
อนุมัติ/ตรวจสอบ	
วันเริ่มงาน	วันเสร็จงาน
มาตราส่วน	แบบที่
งานที่	EE-01
เขียนโดย	แผ่นที่