

DAVIS APPLIED TECHNOLOGY COLLEGE MAIN BUILDING PHOTOVOLTAIC PROJECT

550 EAST 300 SOUTH, KAYSVILLE, UTAH 84037

DFCM PROJECT #10224220

SPARANO + MOONEY
ARCHITECTURE



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AUG 9, 2011 BID SET

PROJECT TEAM

OWNER:



State of Utah—Department of Administrative Services

DIVISION OF FACILITIES CONSTRUCTION
AND MANAGEMENT

4110 State Office Building/Salt Lake City, Utah 84114/538-3018

ARCHITECT:

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ELECTRICAL ENGINEER:

ELECTRICAL CONSULTING ENGINEERS, INC.
939 SOUTH WEST TEMPLE
SALT LAKE CITY, UT, 84101
(801) 521-8007
CONTACT: WILLIE OVIEDA



VICINITY MAP

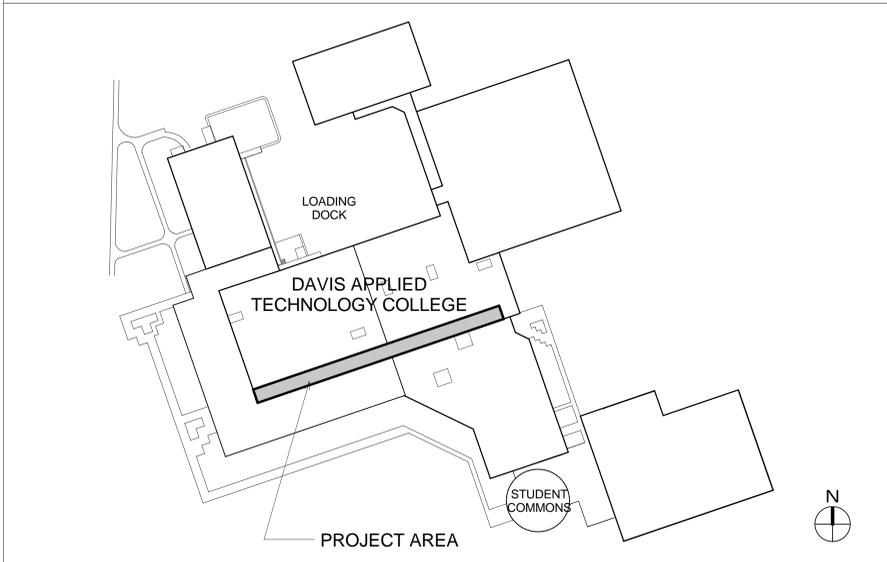
NOT TO SCALE



PROJECT LOCATION
KAYSVILLE, UTAH

PROJECT LOCATION MAP

SCALE: 1" = 80'-0"



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CONSULTANT

SEAL

SEAL



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KEY PLAN

COVER SHEET

DFCM PROJECT # 10224220

SHEET NO.

SMA PROJECT# 1180

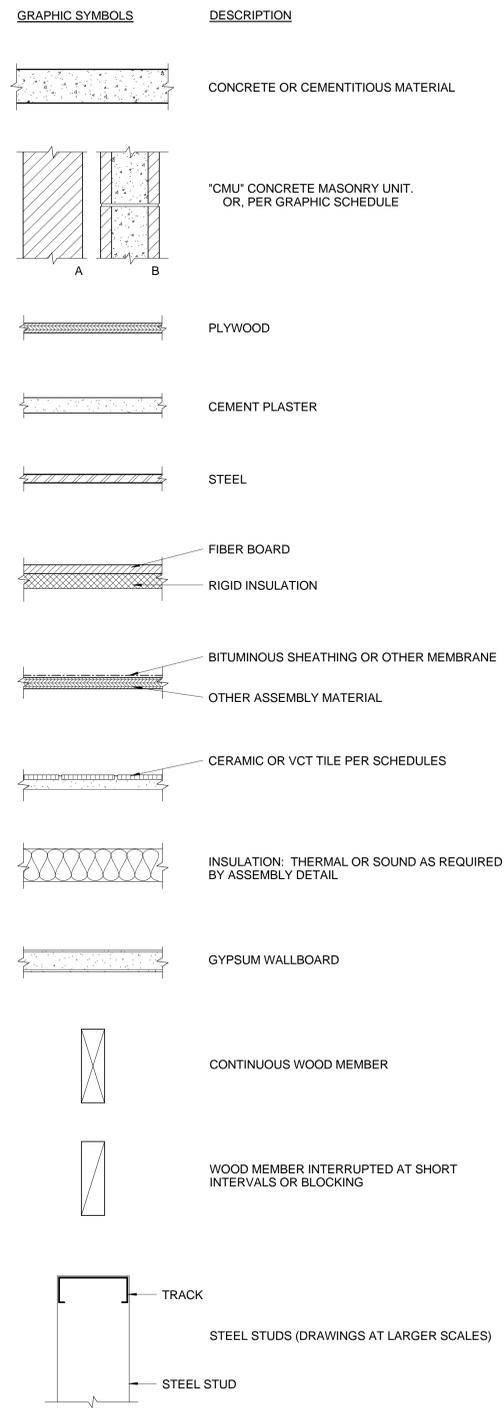
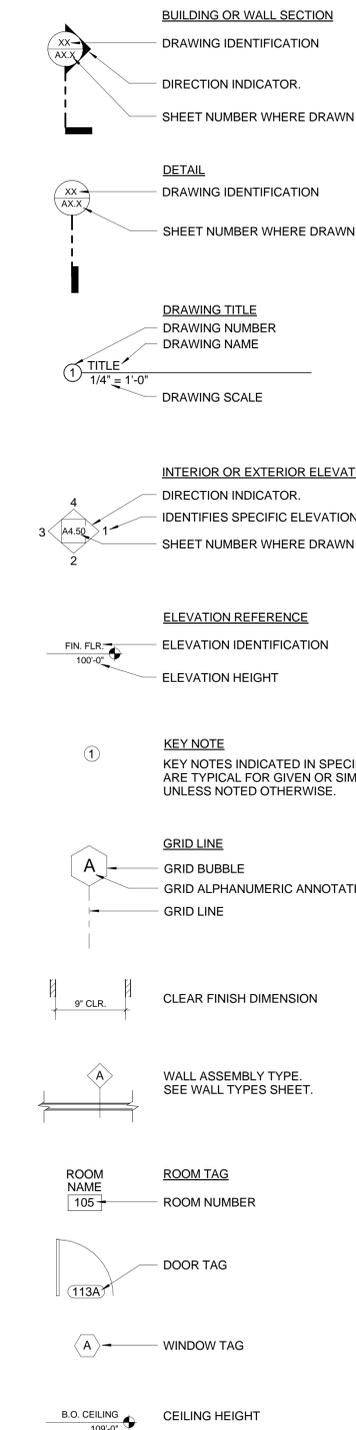
G0.10

DRAWN BY: SS

DATE: AUG 9, 2011

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DRAWING SYMBOLS



ARCHITECTURAL ABBREVIATIONS

A.B.	ANCHOR BOLT	ELEV.	ELEVATOR	L.A.	LANDSCAPE AREA	SGL.	SINGLE
ABV.	ABOVE	E.O.C.	EMERGENCY OPERATIONS CENTER	LAM.	LAMINATED	SHTG.	SHEATHING
A.C.	ASPHALTIC CONCRETE	EQ.	EQUAL	LAV.	LAVATORY	SHLV.	SHELVING
ACOUS.	ACOUSTICAL	EQUIP.	EQUIPMENT	LBS.	POUNDS	SHT.	SHEET
A.C.T.	ACOUSTICAL CEILING TILE	ETC.	ETCETERA	LIB.	LIBRARY	SIM.	SIMILAR
ADJ.	ADJUSTABLE, ADJACENT	E.W.C.	ELECTRIC WATER COOLER	LP	LOW POINT	SL	SLOPE
A.F.	ACCESS FLOORING	EXH.	EXHAUST	LTG.	LIGHTING	S.M.	SHEET METAL
A.F.F.	ABOVE FINISH FLOOR	EXP.D.	EXPOSED	M.B.	MACHINE BOLT	S.M.D.	SEE MECHANICAL DRAWINGS
ALUM.	ALUMINUM	EXT.	EXTERIOR	MAT.L.	MATERIAL	S.P.D.	SEE PLUMBING DRAWINGS
ANOD.	ANODIZED	F.D.	FLOOR DRAIN	MAX.	MAXIMUM	SPEC.	SPECIFICATIONS
A.P.	ACCESS PANEL	F.E.	FIRE EXTINGUISHER	MDL.	MODEL	S.R.F.	SHEET RUBBER FLOORING
ARCH.	ARCHITECTURAL	F.E.C.	FIRE EXTINGUISHER CABINET	MECH.	MECHANICAL	S.S.	STAINLESS STEEL
ASPH.	ASPHALT	F.F.	FINISH FLOOR	MED.	MEDIUM	S.S.D.	SEE STRUCTURAL DRAWINGS
A.W.P.	ACOUSTICAL WALL PANEL	F.G.	FINISH GRADE	MFR.	MANUFACTURER	ST.	STONE
		F.H.C.	FIRE HOSE CABINET	MFRD.	MANUFACTURED	STD.	STANDARD
BD.	BOARD	FIN.	FINISH	MIN.	MINIMUM	STL.	STEEL
BLDG.	BUILDING	FIXT.	FIXTURE	MOUNT.	MOUNTED	STOR.	STORAGE
BLK.	BLOCK OR BLOCKING	FL.	FLOOR	M.R.G.B.	MOISTURE RESISTANT GYP BD	STRUC.T.	STRUCTURAL
BM.	BEAM	F.O.	FACE OF	M.S.	MAGNETIC SWITCH	SUSP.	SUSPENDED
BRKT.	BRACKET	F.O.C.	FACE OF CONCRETE	MTL.	METAL	SW.	SWITCH
B.U.R.	BUILT UP ROOF	F.O.S.	FACE OF STUD	N.	NORTH	T.	TREAD
BOT.	BOTTOM	FRAM.G.	FRAMING	N/A	NOT APPLICABLE	T & B	TOP & BOTTOM
C.	CARPET	F.S.	FINISH SURFACE	N.C	NOT IN CONTRACT	T.C.	TOP OF CURB
CAB.	CABINET	FT.	FOOT OR FEET	N-R	NON-RATED	TEL.	TELEPHONE
C.B.	CATCH BASIN	FTG.	FOOTING	O/	OVER	TEMP.	TEMPERED
CEM.	CEMENT	FURR.	FURRING	O.C	ON CENTER	T & G	TONGUE & GROOVE
C.I.	CAST IRON	G.	GAS LINE	OCCUP.	OCCUPANCY	T.G.	TREE GRATE
C.I.P.	CAST IN PLACE	GALV.	GALVANIZED	O.D.	OUTSIDE DIAMETER	THK.	THICK
C.J.	CONTROL JOINT	G.C.	GENERAL CONTRACTOR	OPP.	OPPOSITE	T.J.	TRUSS JOIST
C.L.	CHAIN LINK	G.I.	GALVANIZED IRON	O.T.S.	OPEN TO STRUCTURE	T.O.	TOP OF
CLG.	CEILING	GL.	GLASS	PL.	PLATE	T.O.C.	TOP OF CONCRETE
CLR.	CLEAR	GLZ.	GLAZING	PL. CEM.	PLASTER CEMENT	T.O.P.	TOP OF PARAPET
CLOS.	CLOSET	GYP.	GYPSUM	P.LAM.	PLASTIC LAMINATE	T.O.PL.	TOP OF PLATE
C.M.U.	CONCRETE MASONRY UNIT	GWB	GYPSUM WALLBOARD	PLAS.	PLASTIC	T.P.	TOILET PARTITION
COL.	COLUMN	H.	HIGH	PLY.	PLYWOOD	T.W.	TOP OF WALL
COMM.	COMMUNICATION	H.C.	HOLLOW CORE OR HANDICAPPED	P.P.	POWER POLE	TYP.	TYPICAL
COMPTR.	COMPUTER	H.D.	HOT DIPPED GALVANIZED	PR.	PAIR	TS	TUBE STEEL
CONC.	CONCRETE	H.D.G.	HOT DIPPED GALVANIZED	PRE.	FACTORY PREFINISHED	U.B.C.	UNIFORM BUILDING CODE
CONST.	CONSTRUCTION	HDR.	HEADER	PROJ.	PROJECTION	U.N.O.	UNLESS NOTED OTHERWISE
CONT.	CONTINUOUS, CONTROL	HDWR.	HARDWARE	PT.	PAINT	U.O.C.	UNLESS OTHERWISE CALLED
CORR.	CORRIDOR	H.M.	HOLLOW METAL	PVMT.	PAVEMENT	U.O.N.	UNLESS OTHERWISE NOTED
C.P.	CONTROL POINT	HORIZ.	HORIZONTAL	R.	RADIUS	V.C.T.	VINYL COMPOSITION TILE
C.T.	CERAMIC TILE	H.P.	HIGH POINT	R.A.	RETURN AIR	VCP.	VITRIFIED CLAY PIPE
C.T.B.	CERAMIC TILE BASE	HR.	HOUR	R.B.	RUBBER BASE	VERT.	VERTICAL
DEPT.	DEPARTMENT	HT.	HEIGHT	R.C.P.	REFLECTED CEILING PLAN	VEST.	VESTIBULE
DET.	DETAIL	HTR.	HEATER	RE.	REFER TO	V.P.	VENEER PLASTIC
D.F.	DRINKING FOUNTAIN	HYDR.	HYDRAULIC	REF.	REFRIGERATOR	W.	WEST
DIA.	DIAMETER	IN.	INCHES	REINF.	REINFORCING	W.AINS.	WAINSCOT
DIAG.	DIAGONAL	INSUL.	INSULATION	REQD.	REQUIRED	W.C.	WATER CLOSET
DIM.	DIMENSION	INT.	INTERIOR	REV.	REVISION	WD.	WOOD
DIV.	DIVISION(S)	JAN.	JANITOR	RI.	RISER	W/H	WATER HEATER
DN.	DOWN	JST.	JOIST	RM.	ROOM	WDW.	WINDOW
DR.	DOOR	KITCH.	KITCHEN	R.R.	RUBBER FLOORING W/ PROFILE RINGS	W.M.	WIRE MESH
DS.	DOWNSPOUT			R.T.	RUBBER TREAD/RISER	WP.	WEATHERPROOF
DWGS.	DRAWINGS			S.	SOUTH	W/	WITH
EA.	EACH			S.A.	SUPPLY AIR	W.R.	WATER RESISTANT
E.	EAST			S.A.Q.D.	SEE AQUATICS DRAWINGS	W.R.G.B.	WATER RESISTANT GYPSUM BOARD
(E)	EXISTING			S.C.	SOLID CORE	W.W.M.	WELDED WIRE MESH
EXIST.	EXISTING			SCHED.	SCHEDULE	#	DIAMETER
EXTG.	EXPANSION JOINT			SEAL.	CONCRETE OR STONE SEALER	Q	POUND OR NUMBER
EJ.	ELEVATION JOINT			SECT.	SECTION	&	CENTERLINE
EL.	ELEVATION			S.E.D.	SEE ELECTRICAL DRAWINGS	@	AND
ELEC.	ELECTRICAL			SERV.	SERVER		AT
				S.F.	SQUARE FEET		

GRAPHIC NOTES

- DIMENSIONS:**
 NOTE: DIMENSIONS IN THESE DRAWINGS ARE GENERALLY PLACED AS INDICATED BELOW, UNLESS NOTED OTHERWISE.
- MASONRY: TO UNFINISHED FACE (NOTE @ SPLIT FACE CONDITION THESE DRAWINGS ASSUME STANDARD 8" OR 12" WIDE BLOCK)
 - CONCRETE: TO UNFINISHED FACE
 - STRUCTURAL: TO STEEL OR TUBING FACE OR CENTER LINE
 - COLUMNS: CENTER LINE
 - NONBEARING PARTITIONS: TO FACE OF STUD. SEE NOTE 9 BELOW
 - THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING ALL ARCHITECTURAL DIMENSIONS TO ASSURE PROPER PLACEMENT OF ALL PARTS AND MATERIALS IN CONJUNCTION WITH ALL OTHER DISCIPLINES REPRESENTED IN THESE DOCUMENTS, PRIOR TO COMMENCING WORK.
 - VERIFY ALL DIMENSIONS INCLUDING SITE CONDITIONS BEFORE STARTING WORK.
 - WRITTEN DIMENSIONS SHALL TAKE PRECEDENCE OVER SCALE.
 - DIMENSION GRAPHICS:
-
- CLR: MEANS THE DIMENSIONS REQUIRED AFTER ALL FINISHES HAVE BEEN APPLIED TO THE SUBJECT SURFACES

AUG 9, 2011	BID SET

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KEY PLAN

SYMBOLS & ABBREVIATIONS

DFCM PROJECT #	10224220	SHEET NO.	
SMA PROJECT#	1180		
DRAWN BY:	SS		GO.20
DATE:	AUG 9, 2011		

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KEYNOTE LEGEND

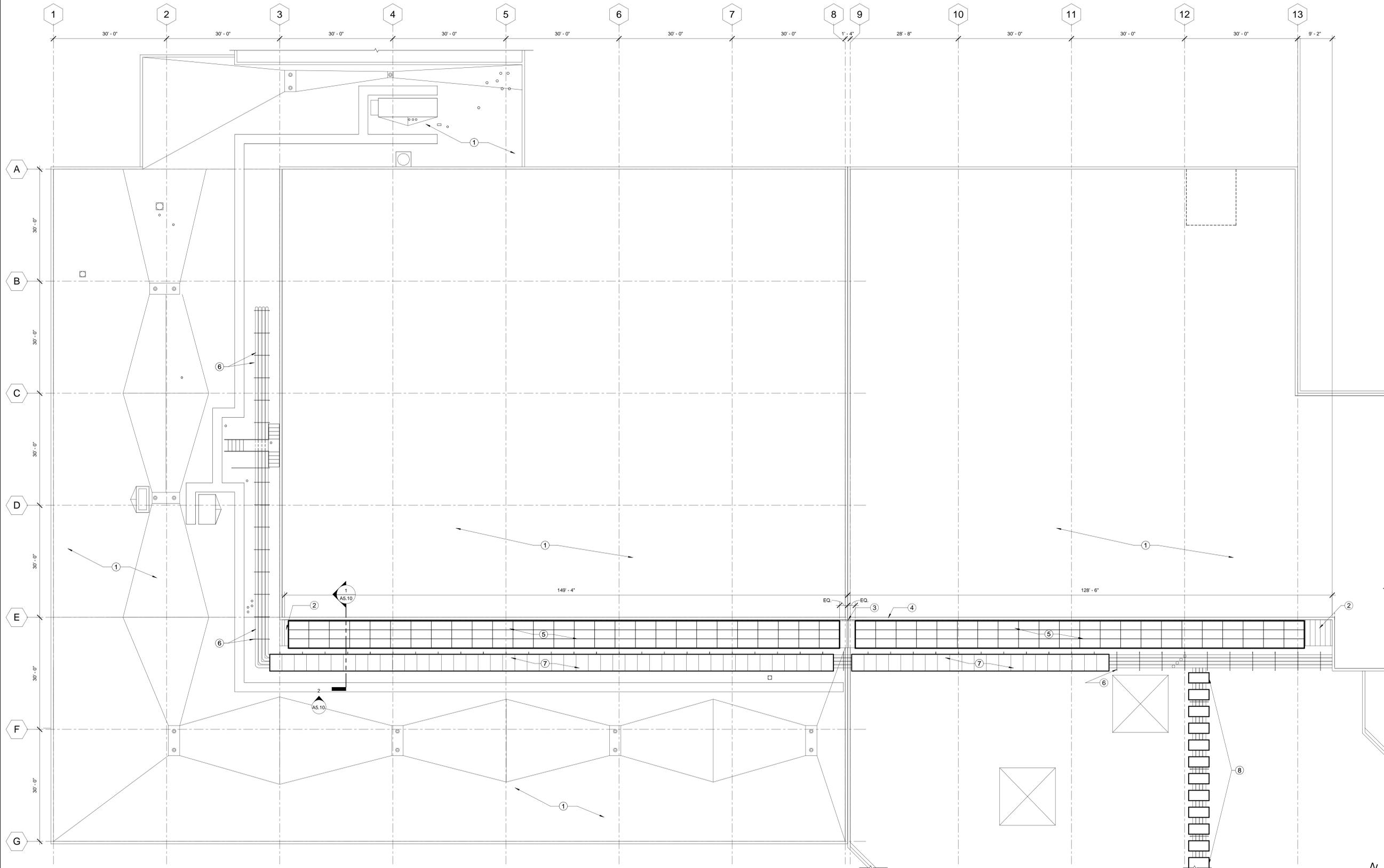
- ① (E) MEMBRANE ROOFING TO REMAIN. PROTECT.
- ② (E) STANDING SEAM METAL ROOFING (ENGLERT 2500 SERIES 2" STANDING SEAM WITH 90 DEGREE SEAM), PROTECT.
- ③ (E) EXPANSION JOINT. PHOTOVOLTAIC PANEL MOUNTING SYSTEM IS NOT TO SPAN THE EXPANSION JOINT.
- ④ (E) METAL PARAPET CAP FLASHING TO REMAIN. PROTECT.
- ⑤ (N) PHOTOVOLTAIC PANELS MOUNTED ON STANDING SEAM CLAMP AND RAIL SYSTEM. SEE ELECTRICAL DWG'S AND SPECIFICATIONS.
- ⑥ (E) MECHANICAL PIPING ON RAISED SUPPORTS. PROTECT PIPING THROUGHOUT CONSTRUCTION.
- ⑦ (N) PHOTOVOLTAIC PANEL SYSTEM MOUNTED ON (E) GALVANIZED STEEL STRUCTURE. SEE ELECTRICAL DWG'S.
- ⑧ ALTERNATIVE #1: (N) PHOTOVOLTAIC PANEL SYSTEM MOUNTED ON (E) GALVANIZED STEEL STRUCTURE. SEE ELECTRICAL DWG'S FOR CONTINUATION AND ADDITIONAL INFORMATION.

GENERAL NOTES

- 1. GENERAL CONTRACTOR TO REVIEW ALL SITE CONDITIONS PRIOR TO BIDDING.
- 2. GENERAL CONTRACTOR IS RESPONSIBLE FOR REPLACEMENT AND/OR REPAIR OF EXISTING SITE AND BUILDING ELEMENTS DAMAGED DURING DEMOLITION AND CONSTRUCTION. THESE ELEMENTS INCLUDE, BUT ARE NOT LIMITED TO, ROOFING, RAISED MECHANICAL PIPING, EXTERIOR CLADDING SYSTEM, LANDSCAPE, ASPHALT, CONCRETE SIDEWALK, CURB AND GUTTER, ETC...
- 3. ALL WORK ASSOCIATED WITH CONDUIT OR OTHER ROOFING PENETRATIONS IS TO BE COORDINATED DIRECTLY WITH THE ROOFING CONTRACTOR. MARK PERKES OF PERKES ROOFING (PHONE 801.430.4483). PENETRATION LOCATIONS AND DETAILS ARE TO BE APPROVED BY THE ROOFING CONTRACTOR PRIOR TO PROCEEDING WITH THE WORK.
- 4. CONTRACTOR IS RESPONSIBLE FOR ALL PATCHING, REPAIRING, AND REPAINTING OF INTERIOR GYPSUM BOARD SURFACES WHERE CONDUIT OR OTHER PENETRATIONS OCCUR.



AUG 9, 2011 BID SET



① ROOF PLAN
1" = 10'-0"

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KEY PLAN

SOLAR PANEL ROOF PLAN

DFCM PROJECT #	10224220	SHEET NO.	
SMA PROJECT#	1180		A1.01
DRAWN BY:	SS		
DATE:	AUG 9, 2011		

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KEY PLAN

ELEVATION, SECTION & DETAILS

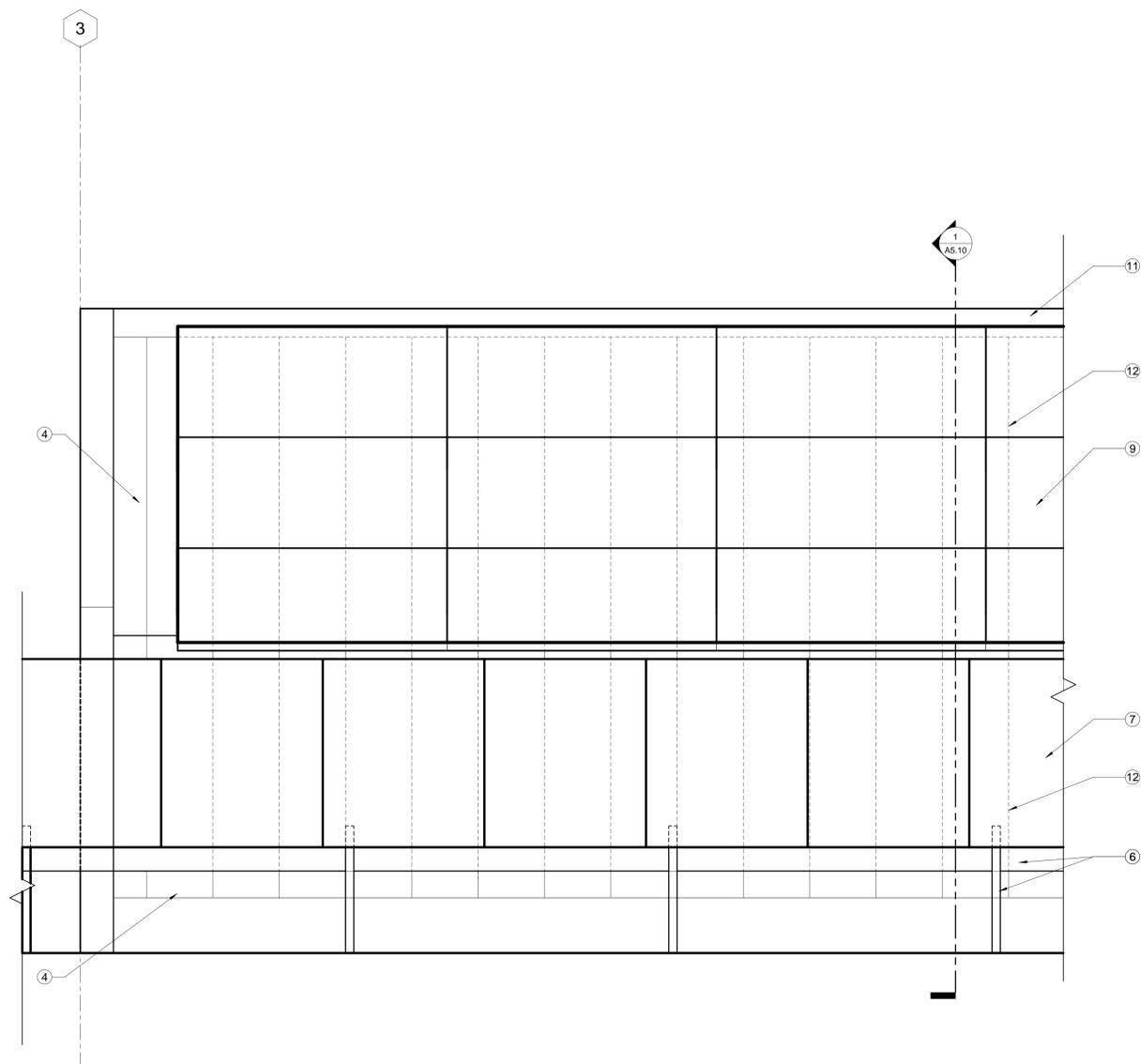
DFCM PROJECT #	10224220	SHEET NO.	
SMA PROJECT#	1180		A5.10
DRAWN BY:	SS		
DATE:	AUG 9, 2011		

GENERAL NOTES

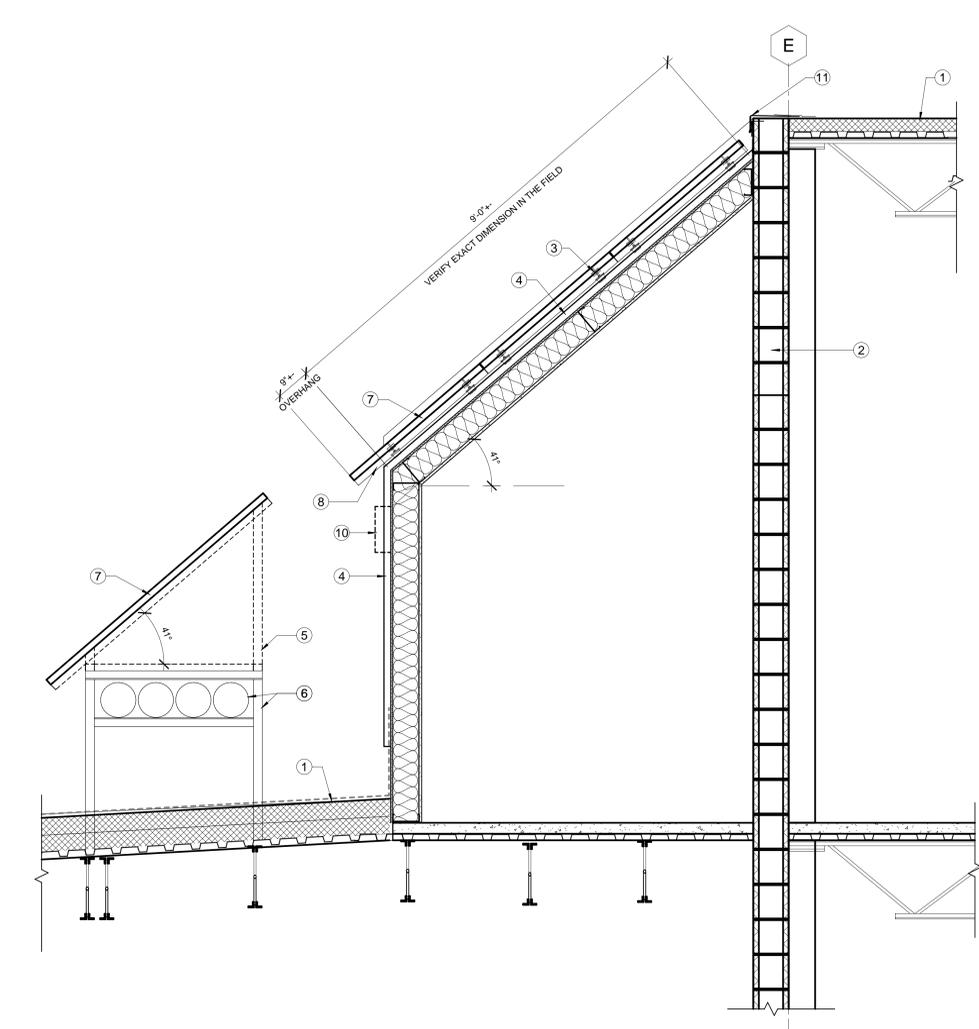
1. GENERAL CONTRACTOR TO REVIEW ALL SITE CONDITIONS PRIOR TO BIDDING.
2. GENERAL CONTRACTOR IS RESPONSIBLE FOR REPLACEMENT AND/OR REPAIR OF EXISTING SITE AND BUILDING ELEMENTS DAMAGED DURING DEMOLITION AND CONSTRUCTION. THESE ELEMENTS INCLUDE, BUT ARE NOT LIMITED TO, ROOFING, RAISED MECHANICAL PIPING, EXTERIOR CLADDING SYSTEM, LANDSCAPE, ASPHALT, CONCRETE SIDEWALK, CURB AND GUTTER, ETC...
3. ALL WORK ASSOCIATED WITH CONDUIT OR OTHER ROOFING PENETRATIONS IS TO BE COORDINATED DIRECTLY WITH THE ROOFING CONTRACTOR, MARK PERKES OF PERKES ROOFING (PHONE 801.430.4483). PENETRATION LOCATIONS AND DETAILS ARE TO BE APPROVED BY THE ROOFING CONTRACTOR PRIOR TO PROCEEDING WITH THE WORK.
4. CONTRACTOR IS RESPONSIBLE FOR ALL PATCHING, REPAIRING, AND REPAINTING OF INTERIOR GYPSUM BOARD SURFACES WHERE CONDUIT OR OTHER PENETRATIONS OCCUR.

KEYNOTE LEGEND

- ① (E) MEMBRANE ROOFING TO REMAIN. PROTECT.
- ② (E) C.M.U. WALL.
- ③ S-S TO9-A-1-A CLAMP OR APPROVED EQUAL. CONTRACTOR TO VERIFY EXACT PART NUMBER AND COMPATIBILITY WITH (E) STANDING SEAM ROOF. SEE ELECTRICAL DRAWINGS FOR ADDITIONAL DETAILS.
- ④ (E) STANDING SEAM METAL ROOFING (ENGLERT 2500 SERIES 2" STANDING SEAM WITH 90 DEGREE SEAM). PROTECT.
- ⑤ (N) GALVANIZED STEEL PHOTOVOLTAIC PANEL SUPPORT SYSTEM ATTACHED TO (E) GALVANIZED STEEL PIPE SUPPORT SYSTEM. PHOTOVOLTAIC PANEL SUPPORT SYSTEM TO BE ENGINEERED, PROVIDED, AND INSTALLED BY CONTRACTOR. PROVIDE ENGINEERING WITH SUBMITTAL.
- ⑥ (E) GALVANIZED STEEL PIPE SUPPORT SYSTEM AND PIPES. PROTECT PIPING THROUGHOUT CONSTRUCTION.
- ⑦ PHOTOVOLTAIC PANELS. SEE ELECTRICAL DWGS.
- ⑧ (N) PHOTOVOLTAIC PANEL RAIL SUPPORT SYSTEM ATTACHED TO S-S CLAMP. RAIL SYSTEM TO BE ENGINEERED, PROVIDED, AND INSTALLED BY CONTRACTOR. PROVIDE ENGINEERING WITH SUBMITTAL.
- ⑨ (N) PHOTOVOLTAIC PANELS MOUNTED ON STANDING SEAM CLAMP AND RAIL SYSTEM. SEE ELECTRICAL DWGS AND SPECIFICATIONS.
- ⑩ (N) DISCONNECT/COMBINER BOX. CENTER BETWEEN METAL PANEL STANDING SEAMS. SEE ELECTRICAL DRAWINGS.
- ⑪ (E) METAL CAP FLASHING. PROTECT.
- ⑫ (E) STANDING SEAM BEYOND SHOWN DASHED.

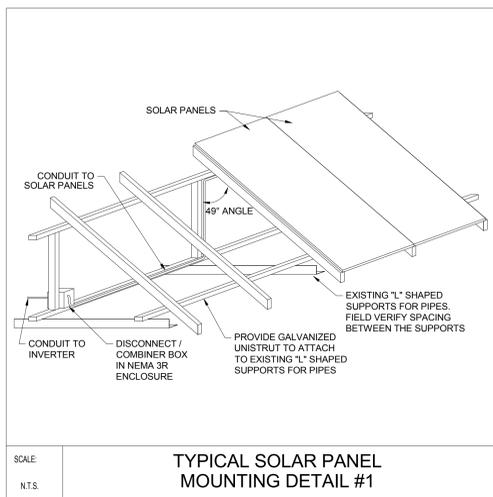


② PARTIAL ELEVATION
3/4" = 1'-0"

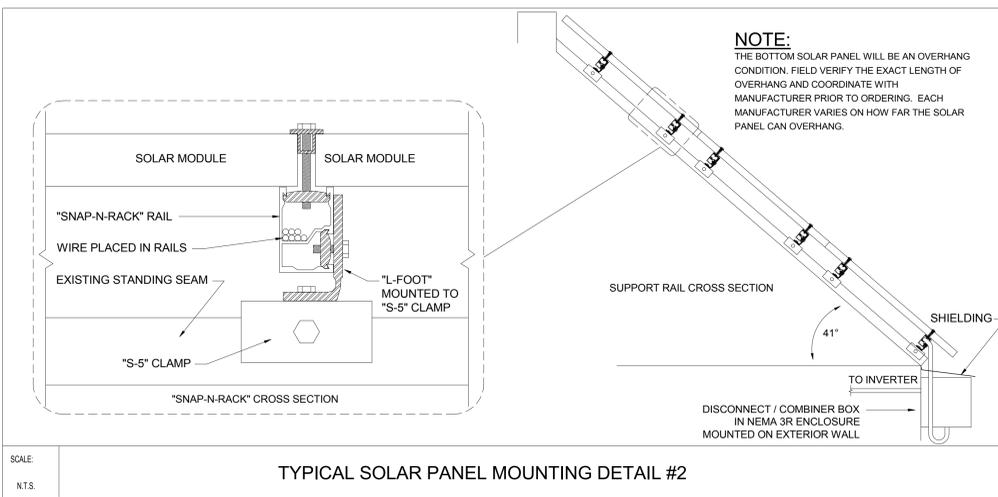


① BUILDING SECTION (A)
3/4" = 1'-0"

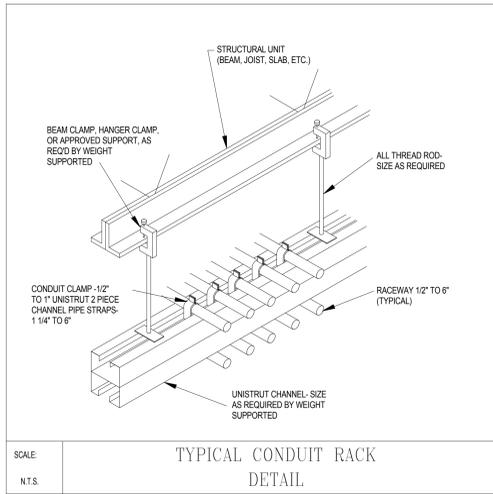
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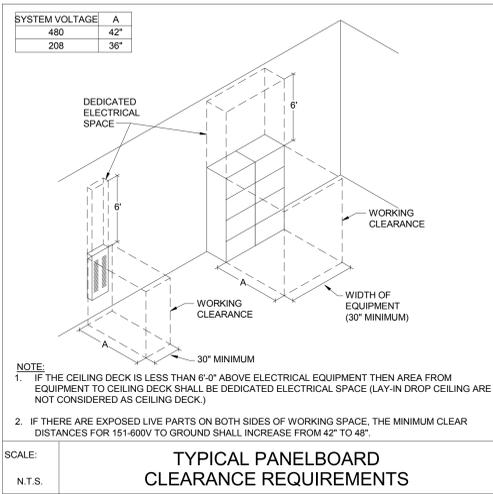
SCALE: N.T.S. TYPICAL SOLAR PANEL MOUNTING DETAIL #1



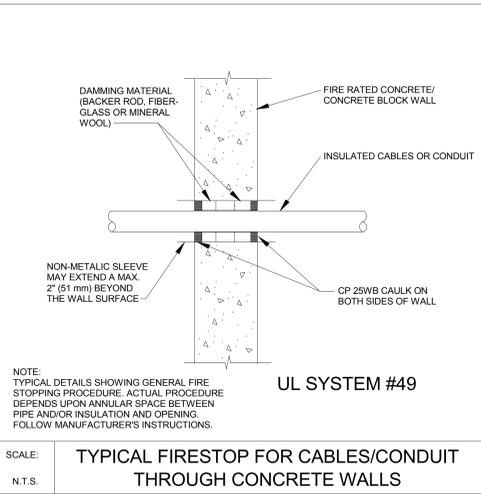
SCALE: N.T.S. TYPICAL SOLAR PANEL MOUNTING DETAIL #2



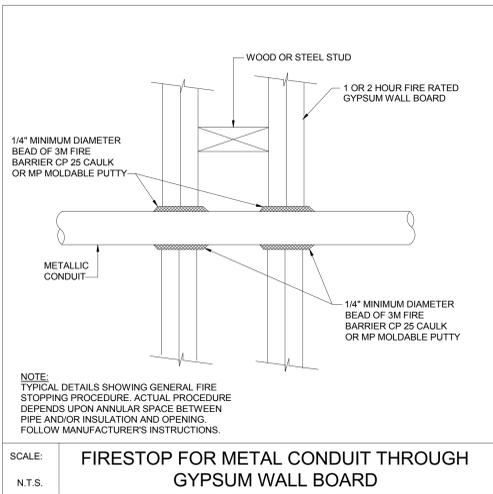
SCALE: N.T.S. TYPICAL CONDUIT RACK DETAIL



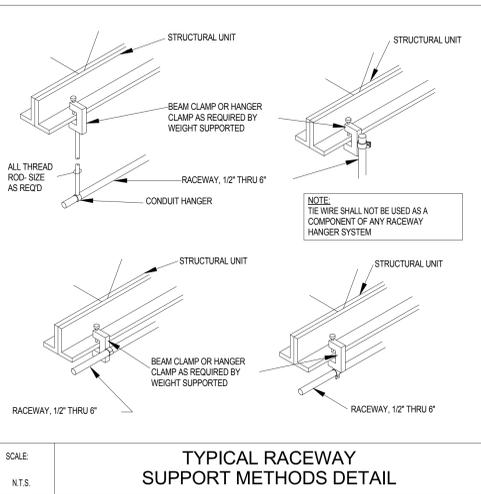
SCALE: N.T.S. TYPICAL PANELBOARD CLEARANCE REQUIREMENTS



SCALE: N.T.S. TYPICAL FIRESTOP FOR CABLES/CONDUIT THROUGH CONCRETE WALLS



SCALE: N.T.S. FIRESTOP FOR METAL CONDUIT THROUGH GYPSUM WALL BOARD



SCALE: N.T.S. TYPICAL RACEWAY SUPPORT METHODS DETAIL

DISCONNECTS/CIRCUIT BREAKER SYMBOL LIST	
SYMBOL	DESCRIPTION
	NON FUSED DISCONNECT SWITCH - SIZE AS REQUIRED
	FUSED DISCONNECT SWITCH - SIZE AS REQUIRED
	COMBINATION STARTER/FUSED DISCONNECT SWITCH - SIZE AS REQUIRED
	CIRCUIT BREAKER DISCONNECT - SIZE AS REQUIRED
	FUSE - SIZE AS REQUIRED
	MOTOR LOCATION
	ELECTRICAL PANEL LOCATION
	ELECTRICAL METER LOCATION

CONDUITS SYMBOL LIST	
SYMBOL	DESCRIPTION
	CONDUITS CONCEALED IN FLOOR OR BELOW GRADE
	CONDUITS CONCEALED IN CEILING AND WALLS
	ARROWS INDICATE HOME RUNS

ABBREVIATIONS SYMBOL LIST	
SYMBOL	DESCRIPTION
W.P.	INDICATES WEATHER PROOF EQUIPMENT
AMP.	AMPERAGE
C	CONDUIT

ELECTRICAL EQUIPMENT LIST	
SYMBOL	DESCRIPTION
	SOLAR PANEL
	INVERTER

- GENERAL NOTES:**
- PRIOR TO SUBMITTING A BID THE ELECTRICAL CONTRACTOR SHALL INSPECT THE SITE AND INCLUDE IN HIS BID PACKAGE ALL CHARGES DUE TO EXISTING CONDITIONS. SHOP DRAWINGS ARE REQUIRED. ALL LABOR, MATERIAL AND WORKMANSHIP SHALL BE GUARANTEED FOR A PERIOD OF 1 YEAR FROM THE DATE OF ACCEPTANCE BY THE TENANT. REPLACE OR REPAIR ALL DEFECTS DURING THE GUARANTEED PERIOD.
 - THE CONTRACTOR SHALL INFORM THE ARCHITECT/ENGINEER IN WRITING OF ANY DISCREPANCIES FOUND BETWEEN THE INTENDED FUNCTION OF EQUIPMENT AND EQUIPMENT SPECIFIED IN THE CONTRACT DOCUMENTS A MINIMUM OF FIVE (5) WORKING DAYS PRIOR TO ISSUANCE OF THE FINAL BID. FAILURE TO REPORT ANY DISCREPANCY (CATALOG NUMBERS, DISCONTINUED ITEMS, ETC.) DOES NOT RELIEVE THE CONTRACTOR FROM PROVIDING EQUIPMENT WHICH SHALL CONFORM TO AND FULFILL THE INTENT OF THE CONTRACT DOCUMENTS, NOR SHALL IT BE USED AS A CONDITION TO OBTAIN ADDITIONAL FUNDS FROM THE OWNER AFTER THE CONTRACT IS AWARDED. THE CONTRACTOR SHALL REQUEST ALL CLARIFICATIONS OF CONTRACT DOCUMENT REQUIREMENTS IN WRITING TO THE ARCHITECT/ENGINEER A MINIMUM OF FIVE (5) WORKING DAYS PRIOR TO ISSUANCE OF THE FINAL BID.
 - MINIMUM SIZE OF CONDUIT TO BE 3/4". ALUMINUM CONDUITS SHALL NOT BE USED.
 - USE RIGID STEEL SET SCREW TYPE FITTINGS ONLY. DIE CAST FITTINGS SHALL NOT BE USED.
 - RUN A NEUTRAL CONDUCTOR FOR EACH PHASE CONDUCTOR (EACH CIRCUIT) IN A CONDUIT. NOT MORE THAN THREE (3) CIRCUITS IN A CONDUIT. THREE (3) PHASE CONDUCTORS, THREE (3) NEUTRAL CONDUCTORS (ONE FOR EACH PHASE) AND ONE (1) GROUND CONDUCTOR FOR A TOTAL OF SEVEN (7) CONDUCTORS.
 - THE MINIMUM SIZE OF THE CONDUCTORS ARE TO BE #12 AWG THIN COPPER, UNLESS INDICATED OTHERWISE ON THE DRAWINGS.
 - ALL J-BOXES SHALL HAVE MINIMUM DEPTH OF 2-1/8" UNLESS OTHERWISE SPECIFIED. SECURE ALL J-BOXES AS SHOWN IN THE DETAILS. FURNISH AND INSTALL PROPER MUD RINGS.
 - ALL NEW EXPOSED CONDUIT MUST RUN AGAINST THE WALLS OR CEILINGS. DO NOT PENDANT MOUNT ANY CONDUIT FROM THE CEILING.
 - SEAL AROUND ALL CONDUIT PENETRATIONS THROUGH FIRE RATED WALLS AND CEILINGS WITH FIRE RATED MATERIAL. 3M IS AN APPROVED MANUFACTURER.
 - ALL ELECTRICAL WIRING MUST BE IN CONDUIT (ROMEX AND MC CABLE NOT PERMITTED).
 - FLEXIBLE CONDUITS CAN ONLY BE USED FOR SHORT RUNS (6' MAXIMUM).
 - NO CONDUITS SHALL RUN IN DUCT WORK.
 - ELECTRICAL CONTRACTOR SHALL HAVE PRE-CONSTRUCTION MEETING WITH ELECTRICAL SHOP SUPERVISOR.
 - CONTRACT DOCUMENTS SHALL TAKE PRECEDENCE OVER SHOP DRAWINGS UNLESS OVER 200 FEET, NO. 6 THIN OVER 300 FEET AND NO. 4 THIN OVER 400 FEET LENGTH.
 - ALL CONDUITS EXPOSED TO THE WEATHER AND SHALL BE GALVANIZED RIGID STEEL, SPECIFICALLY NOTED OTHERWISE.
 - ALL PANELBOARDS SHALL HAVE HALF SIZE ISOLATED NEUTRAL AND GROUND COPPER BUS BARS.
 - USE EPOXY ANCHORS TO SUPPORT THE ELECTRICAL EQUIPMENT. EXPANSION ANCHOR BOLTS ARE NOT ACCEPTED.
 - ALL PANELS SHALL HAVE COPPER BUSES AND SHALL BE BRACED FOR A MINIMUM OF 10,000 AIC OR AS SPECIFIED.
 - PANELBOARDS SHALL BE FIELD MARKED TO WARN QUALIFIED PERSONS OF POTENTIAL ELECTRIC ARC FLASH HAZARDS. THE MARKING SHALL BE LOCATED SO AS TO BE CLEARLY VISIBLE TO QUALIFIED PERSONS BEFORE EXAMINATION, ADJUSTMENT, SERVICING, OR MAINTENANCE OF THE EQUIPMENT. LABOR SHALL BE PER NEC 110-16 & NEC 70E.
 - A SIGN SHALL BE PLACED AT THE SERVICE ENTRANCE EQUIPMENT, INDICATING TYPE AND LOCATION OF ONSITE POWER GENERATING SOURCES.
 - PROVIDE UPDATED, TYPED WRITTEN, DATED PANEL SCHEDULES FOR NEW AND EXISTING PANELBOARDS SHOWING CIRCUIT CHANGES MADE DURING THIS PROJECT.
 - ALL DISCONNECTS, J-BOXES AND CONDUITS EXPOSED TO THE OUTSIDE WEATHER SHALL BE NON-CORROSIVE, WEATHER PROOF TYPE.
 - ALL DISCONNECTS SHALL BE HEAVY DUTY TYPE.
 - ALL NEW WORK MUST MEET THE CURRENT ADOPTED NATIONAL ELECTRICAL CODE.
 - ALL MATERIALS USED IN THIS INSTALLATION SHALL BE U.L. APPROVED AND NEW.
 - TEMPORARY ELECTRICAL SERVICE IS TO BE PROVIDED BY THE ELECTRICAL CONTRACTOR AND REMOVED BY THE ELECTRICAL CONTRACTOR.

- SPECIAL NOTES:**
- CONTRACTORS PROOF OF LICENSURE, CERTIFICATION, AND ARRA RELATED EXPERIENCE AS NOTED IN THE PRE-QUALIFICATION STATEMENT IN THE RFP MUST BE SUBMITTED AT THE TIME BIDS ARE SUBMITTED.
 - REFER TO ATTACHED IMAGES FOR APPROXIMATE LOCATIONS OF INTERACTIVE MONITORS. EXACT LOCATION MUST BE COORDINATED WITH DATC.



AUG. 09, 2011	BID SET

CONSULTANT

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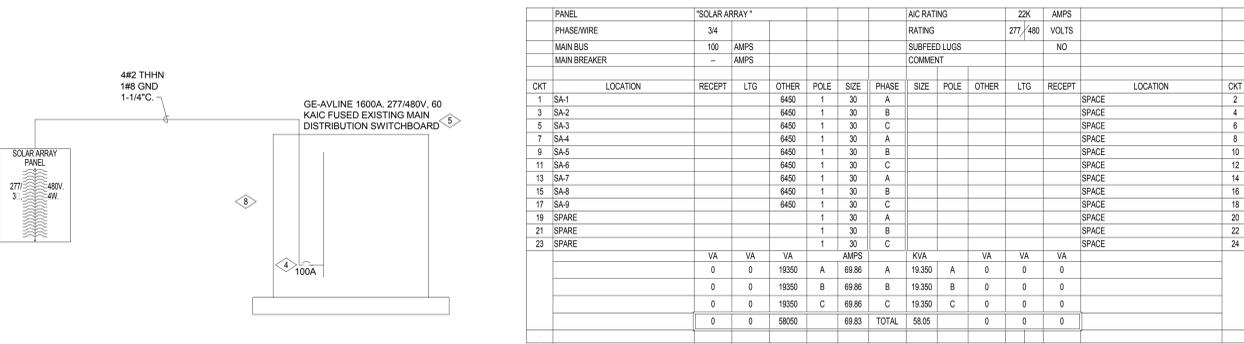
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KEY PLAN

GENERAL NOTE & SYMBOLS LIST

DFCM PROJECT #	10224220	SHEET NO.	
ECE PROJECT#	4013		
DRAWN BY:	RS		E0.01
DATE:	AUG. 09, 2011		

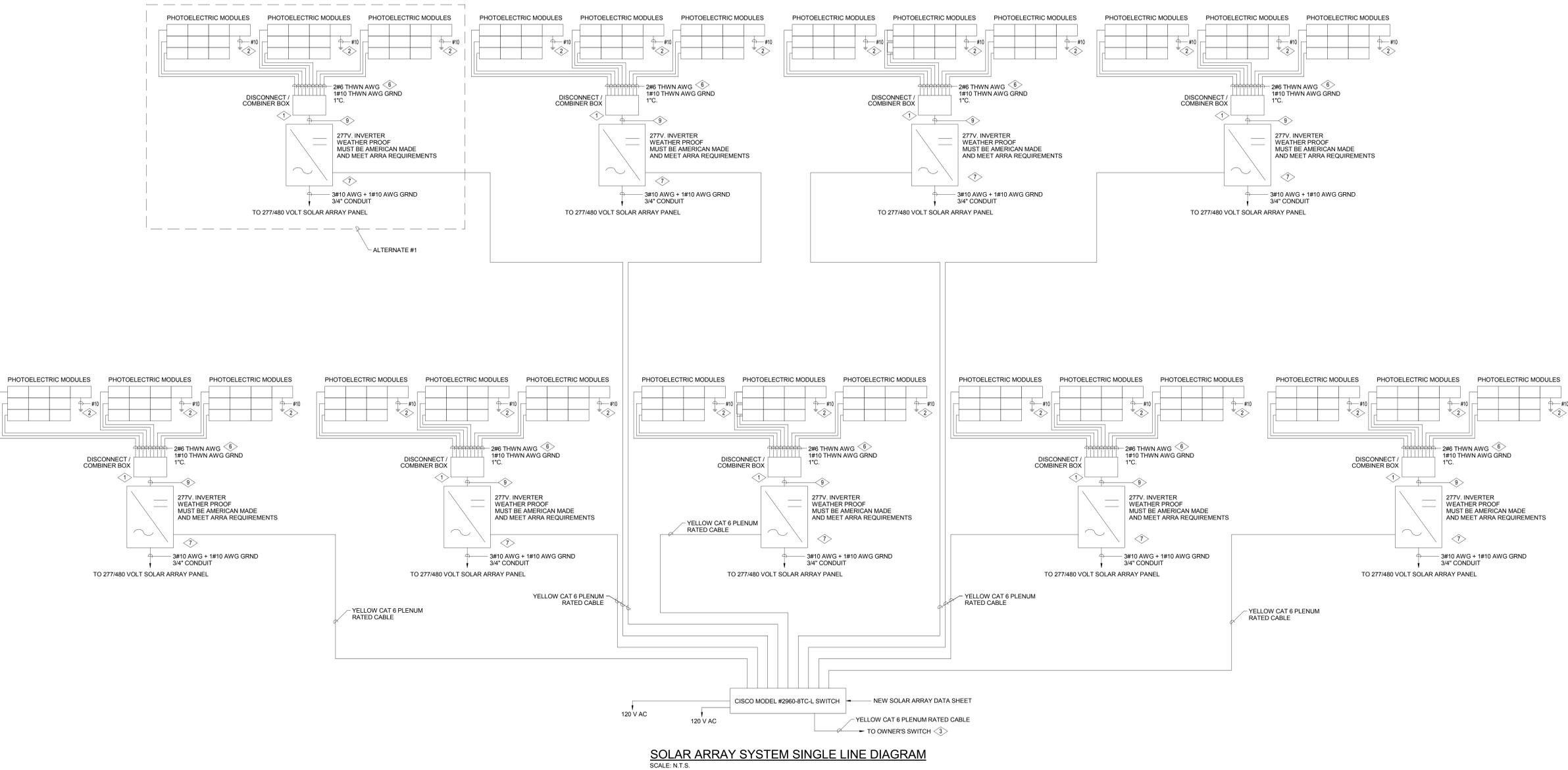
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PARTIAL POWER SINGLE LINE DIAGRAM
SCALE: N.T.S.

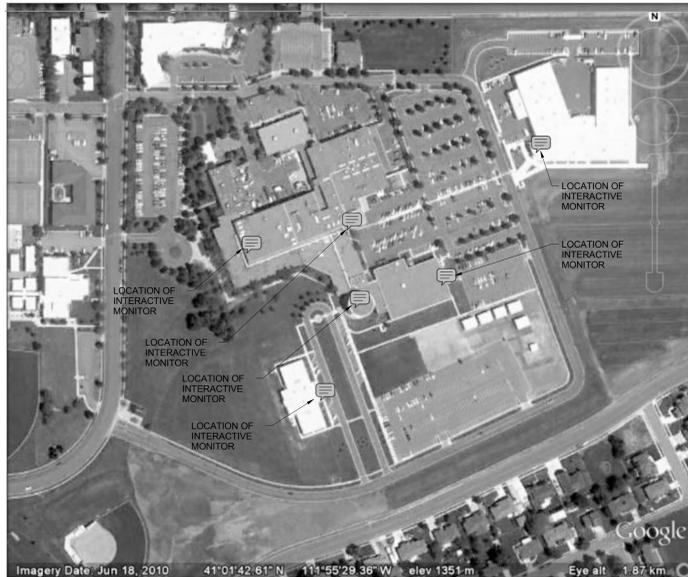
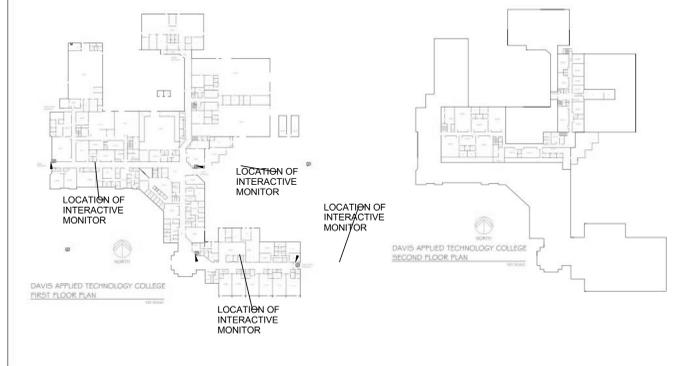
- ### REFERENCE NOTES:
- PROVIDE DISCONNECT/COMBINER BOX EACH STRING THROUGH ITS OWN PROTECTION FUSES/DISCONNECT.
 - THE EACH SOLAR PANEL FRAME TO GROUND THROUGH ITS MOUNTING STRUCTURE PER MANUFACTURER'S INSTRUCTIONS AND NEC 250.
 - RUN CAT 6 CABLE FROM CISCO SWITCH TO ROUTER IN COMMUNICATION ROOM 2019 ON THE 2ND LEVEL (APPROXIMATELY 200 FEET). RUN PLENUM CABLE AND USE J-HOOKS EVERY 5 FEET TO SUPPORT THE CABLE ABOVE THE CEILING. COORDINATE THE ROUTING AHEAD OF TIME WITH THE OWNER. COORDINATE STATIC I.P. ADDRESSING WITH THE OWNER.
 - PROVIDE A NEW 480 VOLT, 100A, 3-POLE CIRCUIT BREAKER THAT IS COMPATIBLE AND OF THE SAME AIC RATINGS AS THE SWITCHBOARD. LABEL THE BREAKER PER FUNCTION WITH AN ORANGE, ENGRAVED LABEL. PROVIDE A LABEL WITH 2" HIGH RED LETTERS READING "THE SWITCHBOARD IS SERVICED BY MORE THAN ONE SOURCE. IDENTIFY AND DISCONNECT ALL SOURCES PRIOR TO PERFORMING ANY WORK."
 - PROVIDE A LABEL AT THE SWITCHBOARD UTILITY BREAKER. PROVIDE A LABEL WITH 2" HIGH RED LETTERS READING "THE SWITCHBOARD IS SERVICED BY MORE THAN ONE SOURCE. IDENTIFY AND DISCONNECT ALL SOURCES PRIOR TO PERFORMING ANY WORK."
 - RUN CABLING IN THE PROVIDED CABLE MANAGEMENT SYSTEM. REFER TO DETAIL ON SHEET E0.01 FOR MORE INFORMATION.
 - ALL INVERTERS CAN BE INSTALLED IN ONE LOCATION INSIDE THE BUILDING NEXT TO THE NEW SOLAR ELECTRICAL PANEL.
 - ANY POWER OUTAGE REQUIRED FOR INSTALLATION OF NEW 100 AMP, 3-POLE CIRCUIT BREAKER MUST BE COORDINATED WITH THE OWNER AT LEAST 2 WEEKS IN ADVANCE. THIS WORK MUST BE DONE OFF HOURS OR WEEKENDS AS DIRECTED BY THE OWNER. IF 100 AMP CIRCUIT BREAKER PHYSICALLY CANNOT BE INSTALLED IN EXISTING SWITCHBOARD THEN CONTRACTOR IS ALLOWED TO INSTALL A NEW 100 AMP FUSED DISCONNECT ON THE SIDE OF THE MAIN SWITCHBOARD AND TIE TO THE MAIN BUS BARS IN THE SWITCHBOARD. PROVIDE 100 AMP TIME DELAY CURRENT LIMITING FUSES.
 - CONTRACTOR WILL BE RESPONSIBLE FOR PROVIDING PROPER SIZE CABLE BETWEEN THE COMBINER/DISCONNECT BOXES AND THE INVERTERS BASED ON THE NUMBER OF MODULES.

- ### SPECIAL NOTES:
- FURNISH AND INSTALL THE PHOTOVOLTAIC SYSTEM PER NEC'S ARTICLE 690.
 - PHOTOVOLTAIC CIRCUITS SHALL RUN SEPARATE FROM ANY OTHER SYSTEM WIRING OR RACEWAY.
 - PROVIDE GEAR LISTED FOR USE WITH PHOTOVOLTAICS.
 - FURNISH AND INSTALL DC GROUND FAULT PROTECTION PER NEC 690.51.
 - ALL CONDUCTORS SHALL BE IN CONDUIT OR RACEWAY PER NEC 690.51.
 - THE PANELS SHALL BE INSTALLED AT AN ANGLE OF 41° OF INCLINATION AND SHALL BE FACING SOUTH.
 - PROVIDE ALL SUPPORTS PER MANUFACTURER'S RECOMMENDATIONS. PROVIDE ALL ROOF PENETRATIONS, FLASHING, SEALING, ETC., NECESSARY FOR A COMPLETE AND FUNCTIONING INSTALLATION. PROVIDE WEATHERHEAD FOR ALL CONDUIT PENETRATIONS TO PREVENT WATER ENTERING INTO THE BUILDING.
 - PROVIDE A (10) TEN YEAR PARTS AND LABOR WARRANTY AND WARRANTY. THE WARRANTY SHALL COVER ALL INVERTERS, DISCONNECT/COMBINER BOXES, MONITORS, ELECTRONICS, RACEWAYS, CONDUCTORS, SWITCHGEAR, LABOR, ETC. PROVIDE A 20 YEAR WARRANTY PARTS AND LABOR FOR PHOTOVOLTAIC MODULES.
 - GRID CONNECTED INVERTERS SHALL HAVE THE FOLLOWING CHARACTERISTICS:
 - INVERTERS SHALL BE PROVIDED WITH A BUILT-IN HTTP SERVER AND WEB PAGE. THE SERVER SHALL PROVIDE THE FOLLOWING INFORMATION: INSTANTANEOUS POWER VOLTAGE AND AMPERAGE PRODUCTION, A MINIMUM OF TWO YEAR HISTORY OF POWER, VOLTAGE AND AMPERAGE PRODUCTION, INSTANTANEOUS AND HISTORICAL DATA OF CARBON EMISSIONS SAVED, SOLAR PANEL PRODUCTION EFFICIENCY.
 - INVERTERS SHALL BE UL 1741 - 2005 AND IEEE 1547-2003 COMPLIANT.
 - INVERTERS SHALL HAVE A MINIMUM EFFECTIVENESS OF 96%.
 - SUBJECT TO COMPLIANCE WITH THE CONTRACT DOCUMENTS THE CONTRACTOR SHALL PROVIDE GRID CONNECTED INVERTERS BY MANUFACTURERS INCLUDING BUT NOT LIMITED TO:
 - FRONIUS
 - SMA
 - PVPOWERED
 - ALL SYSTEM COMPONENTS SHALL BE MADE IN THE U.S.A. AND SHALL COMPLY WITH THE ARRA 2009 AND BUY AMERICAN ACTS.
 - SYSTEM SHOWN IS A BASE OF DESIGN. THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR APPROVAL AND VERIFICATION OF COMPLIANCE WITH THE CONTRACT DOCUMENTS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATION OF THE SYSTEM WITH ALL TRADES. THE CONTRACTOR SHALL PROVIDE SPECIFIC DESIGN DRAWINGS FOR THE PROPOSED SYSTEM.
 - ALL DATA CABLING FOR PV ARRAY SYSTEM SHALL BE YELLOW, PLENUM RATED CABLE.
 - PHOTOVOLTAIC PANELS SHALL HAVE THE FOLLOWING CHARACTERISTICS:
 - MINIMUM PEAK WATT RATING OF 230 WATTS PER MODULE AT AN NOCT OF 41° CELSIUS.
 - MODULES ARE TO BE 39"x65.5" OR LESS IN DIMENSION.
 - MONOCRYSTALLINE SILICON CELLS.
 - IP 65 RATED.
 - 25 YEARS LINEAR OUTPUT WARRANTY.
 - TEMPERED GLASS COVER.
 - CONTRACTOR SHALL BE RESPONSIBLE FOR THE COORDINATION OF THE PANEL SIZE WITH THE PROJECT CONSTRAINTS.
 - CONTRACTOR SHALL BE RESPONSIBLE FOR THE COORDINATION OF THE PANEL WITH THE SPECIFIED PANEL MOUNTING SYSTEM. CONTRACTOR SHALL MAKE ANY MODIFICATIONS NECESSARY AT NO ADDITIONAL COST TO THE OWNER, ARCHITECT OR ENGINEER.
 - PHOTOVOLTAIC MANUFACTURER MUST HAVE BEEN IN BUSINESS AT LEAST (10) TEN YEARS AND HAVE COMPLETED AT LEAST (10) TEN PROJECTS OVER 100 KW OR MORE.
 - ALL CONDUITS FOR PV-ARRAY SHALL BE MARKED WITH 2" PURPLE TAPE EVERY 6 FEET.
 - PROVIDE ALL OF THE TRAINING ON THE SYSTEM FOR THE OWNER.
 - CONTRACTOR'S PROOF OF LICENSURE, CERTIFICATION, AND ARRA RELATED EXPERIENCE AS NOTED IN THE PREQUALIFICATION STATEMENT IN THE RFP MUST BE SUBMITTED AT THE TIME BIDS ARE SUBMITTED.



SOLAR ARRAY SYSTEM SINGLE LINE DIAGRAM
SCALE: N.T.S.

DAVIS APPLIED TECHNOLOGY COLLEGE



SPECIAL NOTES:

- FURNISH AND INSTALL SIX (6) 32" INTERACTIVE TOUCH LCD SCREENS (1180-1920 RESOLUTION WITH LED BACK LIGHTS AND HDMI, VGA PORTS) IN VARIOUS PARTS OF THE CAMPUS. FOUR IN THE BUILDING WHERE THE PHOTOVOLTAIC PANELS ARE BEING INSTALLED AND TWO IN THE BUILDINGS NEXT TO THIS BUILDING. REFER TO ATTACHED IMAGES FOR APPROXIMATE LOCATION OF INTERACTIVE TOUCH SCREENS. COORDINATE WITH DATC FOR EXACT LOCATIONS. (3) THREE MONITORS WILL BE WALL MOUNTED AND (3) THREE MONITORS WILL BE STAND MOUNTED. THE THREE WALL MOUNTS WILL REPLACE THE "YOU ARE HERE" TYPE SIGNS LOCATED NEAR THE WEST MAIN COSMETOLOGY ENTRY, EAST MAIN STUDENT SERVICES ENTRY AND EAST MAIN MATH ENTRY. THE THREE STAND MOUNT MONITORS WILL BE LOCATED AT OR NEAR EACH MAIN RECEPTION DESK LOCATED IN THE MAIN, SIMMONS AND HUB BUILDING. CONTRACTORS REQUIRING A WALKTHROUGH OF THE LOCATIONS ARE TO CONTACT THE FACILITY DIRECTOR, KENT THORSTED AT 801-593-2430.

GRAPHIC TOUCH SCREEN DISPLAY SHALL INCLUDE BUT NOT LIMITED TO THE FOLLOWING:

 - BAR CHART AND GRAPHICS
 - PERFORMANCE OF SYSTEM FOR EACH INVERTER.
 - PERFORMANCE OF THE ENTIRE SYSTEM.
 - DAILY ENERGY OUTPUT.
 - MONTHLY ENERGY OUTPUT.
 - PERFORMANCE OF ENTIRE SYSTEM OVER TIME (FROM THE TIME SYSTEM WAS INSTALLED).
 - GRAPHIC OF SYSTEM INSTALLED.
 - AMBIENT TEMPERATURE
 - SYSTEM VOLTAGE AND CURRENT.
 - CO2 REDUCTION.
 - YIELD IN CURRENCY.
 - OPERATING HOURS.
 - OPERATING FREQUENCIES.
 - ENERGY CONSUMPTION OF SYSTEM DURING OPERATING HOURS.
 - ENERGY CONSUMPTION OF SYSTEM IN STANDBY (NIGHT).
 - SYSTEM EFFICIENCY.

BIDDERS ARE TO PROVIDE ADDITIONAL INFORMATION IN REGARDS TO THE INTERACTIVE SYSTEM AT TIME OF BID FOR OWNERS REVIEW.
- RUN A CAT 6 CABLE FROM THE NETWORK ROUTER IN COMMUNICATION ROOM 2019 TO EACH LOCATION OF INTERACTIVE TOUCH SCREENS (TOTAL OF 4 IN MAIN BUILDING).
- INSTALL THE COMPUTER FOR TOUCH SCREENS ABOVE THE CEILING AND PROVIDE 120 VOLT POWER FROM THE NEAREST 120 VOLT OUTLET OR PANEL.
- RUN CAT 6 CABLE FROM NETWORK ROUTER IN THE OTHER (2) TWO BUILDINGS TO THE COMPUTER FOR TOUCH SCREENS. INSTALL COMPUTER ABOVE THE CEILING DIRECTLY ABOVE TOUCH SCREENS.
- ALL THE EQUIPMENT MUST BE AMERICAN MADE AND MEET ARRA REQUIREMENTS.
- ALL THE ABOVE WORK MUST BE COORDINATE WITH DATC IT GROUP. CONTRACTOR MUST INSTALL A COMPLETE SYSTEM AND PROVIDE TRAINING FOR DATC REPRESENTATIVES. PROVIDE A LIST OF ALL MATERIAL WHICH WILL BE USED. THIS SHOULD INCLUDE THE PERFORMANCE OF THE SOFTWARE AND AVAILABLE INFORMATION ON THE TOUCH SCREEN FOR OWNER'S REVIEW.

AUG. 09, 2011	BID SET

DAVIS APPLIED TECHNOLOGY COLLEGE
MAIN BUILDING PHOTOVOLTAIC PROJECT
550 EAST 300 SOUTH, KAYSVILLE, UTAH 84037

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KEY PLAN

IMAGES

DFCM PROJECT #	10224220	SHEET NO.
ECE PROJECT #	Designer	E0.03
DRAWN BY:	Author	
DATE:	AUG. 09, 2011	

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AUG. 09, 2011	BID SET

DAVIS APPLIED TECHNOLOGY COLLEGE
MAIN BUILDING PHOTOVOLTAIC PROJECT

550 EAST 300 SOUTH, KAYSVILLE, UTAH 84037

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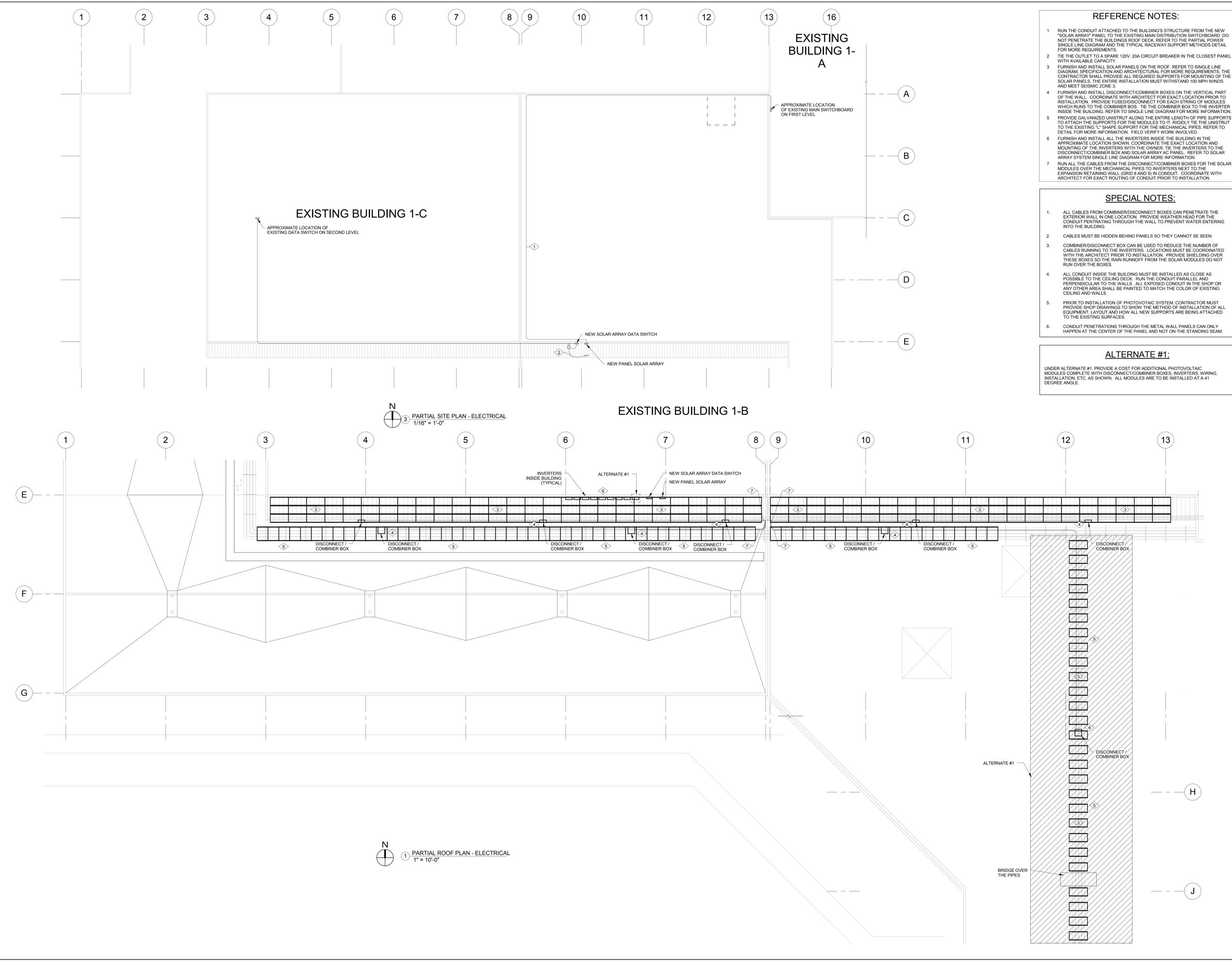
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KEY PLAN

DFCM PROJECT #	10224220	SHEET NO.	E1.01
ECE PROJECT #	4013		
DRAWN BY:	RS		
DATE:	AUG. 09, 2011		

- REFERENCE NOTES:**
- RUN THE CONDUIT ATTACHED TO THE BUILDING'S STRUCTURE FROM THE NEW "SOLAR ARRAY" PANEL TO THE EXISTING MAIN DISTRIBUTION SWITCHBOARD. DO NOT PENETRATE THE BUILDING'S ROOF DECK. REFER TO THE PARTIAL POWER SINGLE LINE DIAGRAM AND THE TYPICAL RACEWAY SUPPORT METHODS DETAIL FOR MORE REQUIREMENTS.
 - TIE THE OUTLET TO A SPARE 120V, 20A CIRCUIT BREAKER IN THE CLOSEST PANEL WITH AVAILABLE CAPACITY.
 - FURNISH AND INSTALL SOLAR PANELS ON THE ROOF. REFER TO SINGLE LINE DIAGRAM, SPECIFICATION AND ARCHITECTURAL FOR MORE REQUIREMENTS. THE CONTRACTOR SHALL PROVIDE ALL REQUIRED SUPPORTS FOR MOUNTING OF THE SOLAR PANELS. THE ENTIRE INSTALLATION MUST WITHSTAND 100 MPH WINDS AND MEET SEISMIC ZONE 3.
 - FURNISH AND INSTALL DISCONNECT/COMBINER BOXES ON THE VERTICAL PART OF THE WALL. COORDINATE WITH ARCHITECT FOR EXACT LOCATION PRIOR TO INSTALLATION. PROVIDE FUSED/DISCONNECT FOR EACH STRING OF MODULES WHICH RUNS TO THE COMBINER BOX. TIE THE COMBINER BOX TO THE INVERTER INSIDE THE BUILDING. REFER TO SINGLE LINE DIAGRAM FOR MORE INFORMATION.
 - PROVIDE GALVANIZED UNISTRUT ALONG THE ENTIRE LENGTH OF PIPE SUPPORTS TO ATTACH THE SUPPORTS FOR THE MODULES TO IT. RIGIDLY TIE THE UNISTRUT TO THE EXISTING "L" SHAPE SUPPORT FOR THE MECHANICAL PIPES. REFER TO DETAIL FOR MORE INFORMATION. FIELD VERIFY WORK INVOLVED.
 - FURNISH AND INSTALL ALL THE INVERTERS INSIDE THE BUILDING IN THE APPROXIMATE LOCATION SHOWN. COORDINATE THE EXACT LOCATION AND MOUNTING OF THE INVERTERS WITH THE OWNER. TIE THE INVERTERS TO THE DISCONNECT/COMBINER BOX AND SOLAR ARRAY AC PANEL. REFER TO SOLAR ARRAY SYSTEM SINGLE LINE DIAGRAM FOR MORE INFORMATION.
 - RUN ALL THE CABLES FROM THE DISCONNECT/COMBINER BOXES FOR THE SOLAR MODULES OVER THE MECHANICAL PIPES TO INVERTERS NEXT TO THE EXPANSION RETAINING WALL (GRID 8 AND 9) IN CONDUIT. COORDINATE WITH ARCHITECT FOR EXACT ROUTING OF CONDUIT PRIOR TO INSTALLATION.
- SPECIAL NOTES:**
- ALL CABLES FROM COMBINER/DISCONNECT BOXES CAN PENETRATE THE EXTERIOR WALL IN ONE LOCATION. PROVIDE WEATHER HEAD FOR THE CONDUIT PENETRATING THROUGH THE WALL TO PREVENT WATER ENTERING INTO THE BUILDING.
 - CABLES MUST BE HIDDEN BEHIND PANELS SO THEY CANNOT BE SEEN.
 - COMBINER/DISCONNECT BOX CAN BE USED TO REDUCE THE NUMBER OF CABLES RUNNING TO THE INVERTERS. LOCATIONS MUST BE COORDINATED WITH THE ARCHITECT PRIOR TO INSTALLATION. PROVIDE SHIELDING OVER THESE BOXES SO THE RAIN RUNOFF FROM THE SOLAR MODULES DO NOT RUN OVER THE BOXES.
 - ALL CONDUIT INSIDE THE BUILDING MUST BE INSTALLED AS CLOSE AS POSSIBLE TO THE CEILING DECK. RUN THE CONDUIT PARALLEL AND PERPENDICULAR TO THE WALLS. ALL EXPOSED CONDUIT IN THE SHOP OR ANY OTHER AREA SHALL BE PAINTED TO MATCH THE COLOR OF EXISTING CEILING AND WALLS.
 - PRIOR TO INSTALLATION OF PHOTOVOLTAIC SYSTEM, CONTRACTOR MUST PROVIDE SHOP DRAWINGS TO SHOW THE METHOD OF INSTALLATION OF ALL EQUIPMENT, LAYOUT AND HOW ALL NEW SUPPORTS ARE BEING ATTACHED TO THE EXISTING SURFACES.
 - CONDUIT PENETRATIONS THROUGH THE METAL WALL PANELS CAN ONLY HAPPEN AT THE CENTER OF THE PANEL AND NOT ON THE STANDING SEAM.
- ALTERNATE #1:**
- UNDER ALTERNATE #1, PROVIDE A COST FOR ADDITIONAL PHOTOVOLTAIC MODULES COMPLETE WITH DISCONNECT/COMBINER BOXES, INVERTERS, WIRING, INSTALLATION, ETC. AS SHOWN. ALL MODULES ARE TO BE INSTALLED AT A 41 DEGREE ANGLE.



3 PARTIAL SITE PLAN - ELECTRICAL
1/16" = 1'-0"

1 PARTIAL ROOF PLAN - ELECTRICAL
1" = 10'-0"