



DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND, PACIFIC
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Notice No. 4
27 July 2016

PRE-PROPOSAL QUESTIONS & ANSWERS

RFP N62742-16-R-1305
AIRFIELD LIGHTING MODERNATION, MARINE CORPS BASE HAWAII
KANEHOE, HAWAII

NOTE: The following questions and answers are provided for INFORMATION ONLY. The RFP remains unchanged unless it is amended in writing on a Standard Form 30.

15. Specification/Drawing: E-509 & E-510. Drawings E509 & E510 provide dimensional data for certain sign foundations. Drawings E513 to E521 depict other signs, but no dimensional data is provided with respect to sign foundation. Please provide dimensional data concerning sign foundations for all configurations.

RESPONSE: Concrete pads for signs shall be 6-inches longer and 3'-6" wider than the sign provided; Verify exact dimensions with sign supplier/manufacturer. See Amendment 0008.

16. Specification/Drawing: G-004. Paragraph/Detail: Note 15. Please provide an electronic copy of MCBH Facility Design and Construction Standards, Aug 2008, as referenced in note 15 on drawing G-004.

RESPONSE: MCBH Facility Design and Construction Standard, August 2008, attached.

17. Please confirm confined space entry procedures as described: MCBH confined space entry form requires four signatures at four different facilities that must be obtained each day before confined space entry is permitted. The MH's are locked and a key must be obtained each day. Additionally, the confined space entry documents and key must be returned each day at the end of work shift

RESPONSE: Comply with the MCBH Confined Space Entry Program, attached.

18. Please confirm confined space entry procedure as described: All circuits must be deenergized prior to any work in an electrical manhole or handhole. The contractor is responsible for submitting outage requests for each day of work in a manhole.

RESPONSE: Comply with the MCBH Confined Space Entry Program, attached.

19. Please confirm confined space entry procedures as follows: The confined space entrant, attendant and supervisor must be three different crew members, e.g. the entrant cannot be the supervisor.

RESPONSE: Comply with the MCBH Confined Space Entry Program, attached

20. Please confirm confined space procedure as follows: Water cannot be pumped back into a manhole. All pumped water must be removed from MCBH.

RESPONSE: Comply with the MCBH Confined Space Entry Program. Dewatering effluent shall not be discharged to the sanitary sewer system. Dewatering effluent may be discharged into the storm drainage system if allowed under the final NPDES permit and only if the discharge is in full compliance with the requirements of the permit, attached.

33. Elevated T/W lights and flush lights are shown having a ground, but elevated R/W lights do not. Is this correct?

RESPONSE: All NAVAID fixtures shall have ground wires. See Amendment 0006.

51. Detail C-1 depicts a typical duct bank section in existing AC pavement. The drawing depicts a base course and a sub-base course below the existing AC pavement. The drawing states that contractor is to “match existing base and sub-base course” when re-establishing the section.

There are no thickness dimensions or specifications provided in the RFP for either of these courses. Will the Government provide some guidance with respect to thickness of courses and acceptable material specifications? Will the Government provide unit priced items or allowances for this work?

RESPONSE: Available record drawings will be furnished. See Amendment 0008.

55. Detail A1 on Drawing A-509 indicates a concrete pad that is 78” long. This size pad will not accommodate signs that are over 1 module in length. How large should the pad be for a 2 module, 3 module and 4 module sign?

RESPONSE: Concrete pad lengths shall be 121-inches for 2-module, 163-inches for 3-module and 206-inches for 4-module signs. See Amendment 0008.

56. Details C1 and C2 on Drawing E-518 appear to be 6 modules worth of signs that need to be installed in one location. Can you provide a detail for installing two signs on one pad? Or should these signs be installed as a 2 module sign and 4 module sign on separate pads?

RESPONSE: Provide one concrete pad 294-inches long for a 2+4 module sign array. See Amendment 0008.

85. Drawing E-229 – It appears that the new 16 way 2 inch and 4 way 2 inch ductbanks leaving the vault will require cutting of new pavements. What is the thickness of the asphalt and PCC pavements in the vicinity of the new vault?

RESPONSE Revised: Available construction drawings are attached. Please note that these are not record drawings and existing condition may differ from the construction drawings.

93. Sheet E-214 has two signs identified as A11, please clarify.

RESPONSE: Sign "PIT A/B →" should be identified as A-10. See Amendment 0008.

104. Several Differing Site Conditions were noted during the site visit; please identify and clarify the current and/or expected conditions (surface and adjacent structures) of the new construction work zone at the PCC in front of Computer Terminal. Please provide as-builts or contract drawings that indicate these new features.

RESPONSE: See FY12 P-822 MCAS Operations Complex Site Drawings. See Amendment 0008.

105. Several Differing Site Conditions were noted during the site visit; please identify and clarify the current and/or expected conditions (surface and adjacent structures) of the new construction work zone at Ramp C. Please provide as-builts or contract drawings that indicate these new features.

RESPONSE: As-built drawings are not available.

143. Drawing E-001 NAVAID FIXTURE/EQUIPMENT SCHEDULE – Taxiway Edge, Semiflush lights are listed as L-852(L) which conflicts with Specification Section 26 56 20.00 10, Paragraph 2.10.1 that indicates "Type L-852E" lights are required. Which is correct?

RESPONSE: LED Semiflush taxiway edge light shall be FAA L-852T(L). See Amendment 0008.

147. On Drawings C-100 to C-104 there appears to be a scale error. Will you please check your scale for these drawings and confirm what you are showing is correct?

RESPONSE: The 1"=30' graphic scales on Sheets C-100 through C-104 are incorrectly marked. The 60' designation should be 30'. The 120' designation should be 60'. See Amendment 0006

148. There does not appear to be a designated laydown area shown on the contract plans. Where is it and how much space can the contractor have for staging materials, equipment, etc.?

RESPONSE: Contractor laydown area is within MCBH Kaneohe Bay, but the exact location is assigned after award of construction contract.

149. The asphalt shoulder work on drawings C-100 and C-101 consists of a 3" thick asphalt surface. Detail C1/E-512 seems to indicate that 6-8" of asphalt is required for patching electrical trenches in existing asphalt shoulders. Would it be permissible to patch trenches in existing asphalt shoulders with a 3" thick patch regardless of the existing asphalt thickness?

RESPONSE: No.

150. Section 32 12 15.13 Hot Mix Asphalt Airfield Paving seems to be geared toward a high volume asphalt paving operation. This project does not include any new full strength asphalt pavement work other than patching of trenches for electrical ductbank. There are several items mentioned in this section that are extreme. For instance, is a profilograph test required for these asphalt patches?

RESPONSE: Taxiway shoulder paving is indicated on Sheet C-100 and C-101

151. Section 32 12 15.13, Paragraph 3.6 Test Section – the test section required by the specifications appears to be about the same of amount of new airfield asphalt shoulder work on the entire job. Can paragraph 3.6 be deleted from this project?

RESPONSE: No. Paragraph 3.6 indicates the maximum size of the test section. Paragraph 3.6 also indicates that the "test section shall be placed as part of the project pavement as approved by the Contracting Officer.

152. Section 32 12 15.13, Paragraph 1.2.3 Material Transfer Vehicle – This machine is not likely to be used for asphalt patching operations because of the narrow trench repair width in most cases. The majority of asphalt patching operations are likely to be performed by using a loader backhoe bucket and hand spreading. Please clarify that methods such as these are acceptable for the trench patching work.

RESPONSE: Taxiway shoulder paving is indicated on Sheet C-100 and C-101

153. There does not appear to be a separate specification for asphalt driveway work at the vault building. Will a Hawaii DOT asphalt mix design be acceptable for the work at the vault building?

RESPONSE: No. Comply with Section 32 12 15.13

154. Section 32 13 11- Concrete Pavement for Airfields and Other Heavy-Duty Pavements – seems to be geared toward a high volume PCC pavement operation. This project does not have any work that even replaces an entire PCC slab at one time per the trench patching detail C3/E-512.

RESPONSE: Comply with Section 32 13 11 – Concrete Pavement for Airfields and Other Heavy-Duty Pavements as referenced.

155. Detail C3/E-512 indicates that the width of a PCC pavement cut can be the same width as the ductbank concrete encasement. Generally, it is not acceptable to cut and patch a portion of a PCC pavement slab on an airfield taxiway or runway. Please confirm that we are permitted to perform a partial PCC slab cut/patch as shown on Detail C3/E-512.

RESPONSE: Confirmed

156. NAVOID Lighting details on Drawings E-504, E-505, E-506, E-507 and E-508 all have a reference to “minimum concrete strength in accordance with Specification Section 32 13 11...” This concrete mix for full strength airfield pavements and doesn’t seem to be appropriate for the light base cans. Would it be acceptable to use a 5000 PSI mix design per Section 03 30 00 for all of the details on these drawings?

RESPONSE: No. Comply with Section 32 13 11 – Concrete Pavement for Airfields and Other Heavy-Duty Pavements as referenced.

157. The Junction Can Plaza Detail on E-511 has a reference to “minimum concrete strength in accordance with Specification Section 32 13 11...” This concrete mix for full strength airfield pavements and doesn’t seem to be appropriate for the junction can plazas. Would it be acceptable to use a 5000 PSI mix design per Section 03 30 00 for the junction can plazas?

RESPONSE: No. Comply with Section 32 13 11 – Concrete Pavement for Airfields and Other Heavy-Duty Pavements as referenced.

158. Drawing F-101 seems to indicate that we should “provide wet pipe sprinkler protection for this entire area”. Airfield lighting vault buildings don’t usually have a sprinkler system of any kind due to the high concentration of electrical/electronic equipment. If water is sprayed on the airfield lighting regulator switchgear it will likely result in a complete loss of the equipment and the airfield lighting system could be down for months waiting for a replacement. Please confirm that a sprinkler system is required for this building.

RESPONSE: Provide fire protection systems as indicated.

159. Archaeological monitoring is required at those locations indicated on plans per specification section 01 11 00.1.2.1. There are no specific areas on the plans called out as requiring archaeological monitoring. Please clarify if the Government or the Contractor is to provide archaeological monitor. If Contractor is to provide archaeological monitor, please clarify basis of payment. We assume that payment for providing archaeological monitor, if required, will be covered by change order since no areas are identified on plans.

RESPONSE: Archeological monitoring is not required. See Amendment 0008.

160. The Demolition Notes and Legend on drawing E-002 do not address removal of concrete bases for demolition notes #4, #5 & #7. Please confirm that concrete bases may be left in place as applicable to these notes.

RESPONSE: Confirmed

161. Please provide as-built drawing for existing underground airfield light and duct bank. This information is required to take in consideration any possible conflicts between new and existing UG utilities, also it is required to estimate volume / cost of expanding foam to fill abandoned electrical conduits.

RESPONSE: Available record drawings will be furnished. See response to Question 162.

162. General scope of work Note #9 on sheet E-002 indicates to use expanding foam in existing underground conduits to be abandoned in place. Please provide specification of the subject foam. Also please advise if the foam is required to fill the entire length or just cap ends of abandoned conduits.

RESPONSE: Expanding foam is required only at the duct entry points into base cans and handholes to be abandoned in place. Installation of expanding foam at these points in accordance with the manufacturer's instructions will result in an acceptable seal.

163. In specification section 01 14 00 Work Restrictions, paragraph 1.2 Special Scheduling Requirements items d. 4 it states: “Certain taxiways, aprons, and other areas away from the runway will be accessible for construction during airfield operation hours. However, the Contractor must vacate the area if directed to do so.” Can you please define these locations for us? If we are to vacate the area, will

this be done on a normal schedule so we can plan on these outages? If not, could you please assign a quantity of how many times we must vacate for all of us to assume in our proposals.

RESPONSE: See response to Question 110 and Amendment 0006.

164. In specification section 01 14 00 Work Restrictions, paragraph 1.2 Special Scheduling Requirements items d. 1, it states: “Airfield operating hours are from 0500 hours through midnight, Monday through Saturday. Work affecting the runway must be completed outside airfield operating hours except as otherwise indicated.” What are we supposed to assume will be our working time daily schedule for all the work that needs to be complete near and in Runway 4 and 22?

RESPONSE: See response to Question 110 and Amendment 0006.

165. In specification section 26 56 20.00 paragraph 3.2 “General installation requirements” it states: “Concrete work shall conform to the requirements of Section 32 13 11 Concrete Pavement for Airfields and other heavy-duty pavements.” This section of work has numerous concrete pads and encasements of runway light fixtures; Section 32 13 11 deals with concrete paving of airfields with slip forming machines and other equipment, nothing like the work required in section 26 56 20.00. Would you consider revising this requirement to conform to section 03 30 00 Cast in Place Concrete?

RESPONSE: No, comply with Specification Section 26 56 20.00

166. On drawing E-002 under the “Demolition notes – Airfield Lighting” are we required to remove all the existing cabling that is in the duct backs to the various edge lights, and signs?

RESPONSE: Yes.

167. Please confirm that all the duct banks shown on drawings E101 to E130 will be abandoned in place and foam-filled only where they penetrate a sign of runway/taxiway light can structure.

RESPONSE: See response to Questions 162.

170. On sheet A-201, detail (B1) indicates concrete above 10' CMU wall, however, detail (D5) and detail (C1) indicate continuation of CMU wall to overhang. Please confirm which is correct.

RESPONSE: Longitudinal Section B1 is correct.

171. Concrete jacket around existing conduit, section (A1) does not indicate lateral reinforcement spacing or size on sheet S-501. Please provide reinforcement detail.

RESPONSE: Lateral reinforcement shall be #3 at 12-inches on center. See Amendment 0008.

172. Please provide structural section typical detail for 4' walkways called out on sheets C-004 and C-503.

RESPONSE: Sidewalk shall conform to Section A5 on Sheet S-501. See Amendment 0008.

173. Please provide details on new communication line that is called out on sheet C-003.

RESPONSE: New communication conduit is indicated on Sheet E-229.

174. Please provide locations and quantities for tracer wire termination boxes for both sewer and waterlines.

RESPONSE: Tracer wire is not needed for sewer lines. Provide one tracer wire termination box at Begin Water Line Sta 0+00 and one tracer wire termination box at End Water Line Sta 1+62.83. See Amendment 0008.

175. Please provide tie in details for the 8" waterline connection and verify that existing 8" waterline is PVC pipe.

RESPONSE: Waterline connection callouts at Begin Water Line Sta 0+00 and End Water Line Sta 1+62.83 will be revised. See Amendment 0008.

176. Please confirm that demoed concrete walkways and curb shown on sheet C-001 are to be replaced.

RESPONSE: Provide curb and walkway as shown on Sheet C-004.

177. Please provide bedding aggregate requirements for both sewer line and waterline

RESPONSE: Bedding material is indicated in Section 31 23 00.00 20 Paragraph 2.3.

178. Please provide the function of existing conduits in Section A-1 shown on sheet S-501 and indicate whether any and/or all the conduits may be temporarily disconnected. This will allow for safe excavation around the existing conduits to create access for the new reinforced concrete encasement.

RESPONSE: Encase existing conduits in place as shown on Sheet S-101.

179. Sheet A-101 calls out concrete landing typ. S-101 has more details regarding the concrete landings. Please confirm that there are only 3 concrete landings at Doors 101A, 102A and 103A

RESPONSE: Concrete landings are required at each exterior door as shown on Sheet S-101.

180. None of the architectural drawings show roof gutters or down spouts. F-104, detail 2 shows a gutter next to the fire alarm antenna. Please confirm that gutters and down spouts are not required.

RESPONSE: Gutters and downspouts are not required.

181. Sheet A-201, Detail A3 shows the concrete roof to be 5" thick. Sheet S-102 and S-502 shows the concrete roof as 8" thick. Please confirm which is correct.

RESPONSE: Concrete roof thickness is 8-inches as indicated on the structural drawings. See Amendment 0008.

182. Please confirm that there is no acoustical wall insulation in the generator room.

RESPONSE: Acoustical wall insulation is not required in the generator room

183. Material notes on sheet A-501 mentions a metal ladder and steel corner guards. Neither could be found on the building. Please confirm there are no ladders or steel corner guards.

RESPONSE: There are no ladders or steel corner guards. See Amendment 0008.

184. Please confirm that only Door 102B is fire rated and that the Door Frame for 102B is the only one required to be grouted.

RESPONSE: All door head frames and jamb frames shall be grouted. See Amendment 0008.

185. S-501 shows the vapor barrier wrapping under the wall footings. Please confirm this is not required.

RESPONSE: Terminate vapor barrier at point where bottom of slab thickened edge abuts top of footing. See Amendment 0008.

186. The Pipe Trench for the generator fuel is shown to be 1'-2" deep on S-501, Detail B4 but on A1/A-201 it is shown to be 1'-0" deep. Please confirm which is correct.

RESPONSE: Sheet S-501 is correct. See Amendment 0008.

187. Please provide any mounting details for the trench grate for pipe trench called out on sheets S-501 and A-201, or if it will stay in place via gravity.

RESPONSE: Provide aluminum grating 15-1/4 inches wide with 2-inch by 2-inch by 1/4-inch thick recessed stainless steel frame. Top of grating shall be flush with top of floor. See Amendment 0008.

188. Please provide details for the grades in relation to the Pipe Trench and the penetration of the exterior of the building called out on sheets S-501 and A-201.

RESPONSE: Fuel piping penetrates wall above grade as shown on Sheet M-502 Pipe Support Detail A3. Fuel piping alignment transitions inside the building to bottom of trench.

189. Are there any concerns for letting water into the building called out on sheets S-501 and A-201?

RESPONSE: No.

190. Please confirm that no floor drains and/or hydrodynamic separator and/or detention system is required for capturing any discharge from the fire suppression system.

RESPONSE: There are no floor drains or other systems for capturing discharge from the fire suppression system.

191. Please confirm that there are no exterior light fixtures on the NAVAID Vault Bldg.

RESPONSE: Confirmed, there are no exterior light fixtures on the NAVAID Vault Building.

193. Can we get dimensions of room and door openings on vault electrical plan (sheet E-402)?

RESPONSE: Dimensions are shown on Sheet A-502.

194. spec 2.4.10 requires CCR with “input voltage of 208”. But drawings (ex sheet E-602) shows an input voltage of 480V. Please clarify input voltage for the CCRs .

RESPONSE: Input voltage for the CCRs shall be 480V.

195. Note 1 sheet E-002 says a “new control system to be provided by the government/spawars”. Is there any specification available on how the SPAWARS system will be interfaced with the new CCRs switchgear L-829? In particular, is there any insulation resistance monitoring function required?

RESPONSE: Insulation resistance monitoring is a requirement of the FAA L-829 CCRs.

196. Spec 2.4.12 circuit selector cabinet requires the “circuit selector cabinet” to be “class A, indoor, Rating 1..”. But we don’t see any location for the circuit selector cabinets in vault electrical plan sheet E-402. And note 2. sheet E-002 requires to provide “L-829 in switchgear assembly, including FAA L-847 circuit selector switches...”. Please clarify where should the Circuit Selector Switches be located.

RESPONSE: Circuit selector switches shall be incorporated into the L-829 switchgear assembly. A separate enclosure is not required.

197. Sheet E-508 detail A-1 shows junction can as L-868B. But cover should be a L-867B cover/ Finally sheet E-511 shows L-867D base can for junction can plaza detail. Please confirm type of junction can (L-868B? L-867? L-867D?).

RESPONSE: Sheet E-508/Detail A-1: Junction/base can and cover for signs shall be FAA L-867B.
Sheet E-511: Provide FAA L-867D junction/base cans

198. Spec 3.19 Training. A training for the “system” is required in this part. Please clarify which “system” this training refers to (the CCR switchgear system ? The new control system ?). Please clarify duration of the training, people involved, and location.

RESPONSE: If referring to Spec Section 26 56 20.00 10 Airfield and Heliport Lighting and Visual Navigational Aids, training for the “system” refers to all items included in this specification section including the CCR switchgear system. Training for the new control system provided by MCBH Kaneohe/SPAWAR is not included. The Contractor shall propose the duration, location of training and who should be trained in accordance with the paragraph noted.

199. Spec section 26 27 14.00 20, paragraph 2.1.2 Potential Transformer Requirements, b. states that Voltage input shall be optically isolated to 2500 volts DC from signal and communications outputs. Components shall meet or exceed IEEE C37.90.1.

Q) Does this statement imply some kind of VT will be present?

RESPONSE: Comply with paragraph 2.1.2 as written.

200. The meters must be set up for a program for the module and the meter before manufacture. Are you willing to wade through this process?

RESPONSE: Comply with the specifications as written.

201. Should we work on the L+G meters mentioned or more towards the Elster with the full auto ranging capability? Elster meter with the L&G communications module is that L&G doesn't have a fully auto ranging (120-480V) meter and this is what the spec calls for.

RESPONSE: See response to Question 48.

203. Drawing S501, detail A1, depicts encasement section for placement of new reinforced concrete duct bank around existing conduits. There is no call out on specifics of transverse reinforcement. Please provide rebar size and spacing of the transverse reinforcement.

RESPONSE: See response to Question 172

204. Drawing C001 depicts the plan route of existing duct bank encasement under new vault building. Drawing S501 depicts the configuration of newly encased duct bank. Please confirm that for bidding purposes, contractor should assume the existing duct bank is encased in sand and conduits are nested in spacers.

RESPONSE: Base bidding on the conditions as indicated.

205. Please provide a detail for existing AC thickness for the infield found on pages E-201-203 and E-205-207.

RESPONSE: See reference drawings furnished with Amendment 0006.

206. Specification Section 32 12 15.13 - Hot-Mix Asphalt Airfield Paving references testing per "lot" and by "sublot". Please provide definition of "lot" and how many "sublots" per "lot".

RESPONSE: A "lot" is defined as 2000 tons. A subplot is defined as an equal proportion of the lot as required by a test method or procedure. For example, a subplot for a method requiring four samples per lot would be one-fourth of a lot. See Amendment 0008.

207. Please clarify thickness of existing asphalt on taxiway. Detail C3 on sheet C-503 states 3 inch. Detail C1 on sheet E-512 states 6-8 inch.

RESPONSE: Taxiway Shoulder Asphalt Pavement Section C3 on Sheet C-503 applies to the new taxiway shoulder pavement areas shown on Sheet C-100 and Sheet C-101 as indicated. Detail C1 on Sheet E-512 applies to existing pavement areas.

208. Sheet E-229 has a callout for a 3'x5' handhole, see detail on sheet E-522. Sheet E-522 is not included in the plan set. Please provide sheet E-522 with the handhold detail.

RESPONSE: Handhole detail is shown on Sheet E-501. See Amendment 0008.

209. Sheet E-002, Demolition Note 8, callouts out removal of helipad/H-60 lights but the plan sheets do not show the location of the helipads. Also, sheet E-612 shows wiring diagrams for new lighting at the helipads. Please provide plan sheets to show the location and scope of the Helicopter Pad lighting Demolition and Installation.

RESPONSE: Existing Helipad lights are to remain. See notes pertaining to CCR H1 WIRING DIAGRAM, Sheet E-612 - existing helipad lights are existing to remain. See Amendment 0008.

210. On sheet G-004, Note 14 states that the contractor shall plan operations to minimize the amount of excavated trenches left open at the end of each work day with the total length of open trenches not to exceed 500 FT. Does this note still apply even when working in a 60 day runway closure?

RESPONSE: Yes.

211. On sheet G-004, Note 14 states that the contractor shall plan operations to minimize the amount of excavated trenches left open at the end of each work day with the total length of open trenches not to exceed 500 FT. Does this note still apply even when working in a 60 day taxiway closure?

RESPONSE: Yes.

212. On sheet G-004, Note 51 states that the maximum allowed duration for taxiway closure is 60 calendar days. Please provide the limits of the closures allowed.

RESPONSE: Comply with the constraints as indicated.

213. On sheet G-004, Note 51 states that the maximum allowed duration for taxiway closure is 60 calendar days. Please provide phasing drawings for taxiway closures.

RESPONSE: Phasing of work, subject to the constraints indicated, is a contractor means and methods item.

214. On sheet G-004, Note 14 states that open trenches shall be covered by non-skid plates capable of carrying HS20-44 vehicles in traffic areas and 100 pounds per square foot in non-traffic areas. Does this note still apply even when working in a 60 day runway closure?

RESPONSE: Yes.

215. On sheet G-004, Note 14 states that open trenches shall be covered by non-skid plates capable of carrying HS20-44 vehicles in traffic areas and 100 pounds per square foot in non-traffic areas. Does this note still apply even when working in a 60 day taxiway closure?

RESPONSE: Yes.

216. On sheet G-004, Note 14 states to provide anchoring of the plates in non-traffic areas. Please provide a detail to show how the plates are to be anchored.

RESPONSE: Anchoring of temporary plates is a contractor means and method item.

217. On sheet E-002, Note 9 states to provide expanding foam in existing underground ductlines to be abandoned in-place. Is the intent of this note to fill the entire ductline with expanding foam or only to plug the ends?

RESPONSE: See response to Question 162.

218. On sheet E-002, Note 9 states to provide expanding foam in existing underground ductlines to be abandoned in-place. If the intent of this note to fill the entire ductline, please provide the location of the existing ductlines on the plans to quantify the expanding foam.

RESPONSE: See response to Question 162.

219. Please provide details to better quantify the scope of demolition shown on sheet E-223.

RESPONSE: Comply with the requirements of the contract document

220. Please provide erosion control plans.

RESPONSE: Erosion control plans will not be provided

221. Section 1.10 DFARS 252.225-7018, Photovoltaic Devices - Certificate (Jan 2016), requires the offeror to identify value and country of origin for these devices, however, there are no callouts either on the plans or specifications that require these devices to be constructed/utilized for this project. Please confirm where these devices shall be constructed for this project.

RESPONSE: There are no Photovoltaic Devices included in the project. See Amendment 0008.

222. Drawings E201 thru E233 & Drawings E605 thru E612. New work plan drawings E201 thru E233 show an overall different quantity of new NavAid Lights than the schematic drawings E605 thru E612. This quantity difference has significant implications to new electrical work and associated civil work. Will the government issue a NavAid Lighting Schedule to define light quantities and types or otherwise clarify and reconcile the differences?

RESPONSE: See Amendment 0006 Sketch SK-6

223. Drawings E502, 503, 507, 508, 509 & 510. Please clarify if light cans embedded in Sign Bases, PAPI Bases, and REIL bases require identification/markings similar to detail A1 on drawing E507. Schematic drawings E605 thru E612 depict numbering on these features but details on the E-500 series drawings do not.

RESPONSE: Provide identification for all light can bases associated with a NAVAID fixture or sign.

224. Amendment 0006 and Notice 3. Due to the large quantity and nature of changes and additional information provided in amendment 0006 as well as the quantity of deferred responses to RFI's in notice 3, will the Government extend the proposal due date by 1 week to allow Contractors, subs and vendors to reasonably distribute, evaluate and assess the information?

RESPONSE: See Amendment 0007.

225. Spec Section 33 56 10, Page 8, Para. 2.8.2. One of the Aboveground Storage Tank (AST) manufacturer mentioned that the requirement of "API MPMS 2.2E certified strapping tables" is a requirement that must be achieved by using a special laser measuring device that will take into account every indentation and imperfection of the AST interior and provide a unique strapping chart for the tank. The AST manufacturer said that he came across this requirement on another Navy project and the inspector rejected his standard charts which are typically provided for no charge with the AST. The AST manufacturer usually do not provide this service. The Contractor for this other project found someone that had the laser measurement equipment and did this for around \$10,000.00 per tank.

Q) Can you check into this API spec and discuss this with the client to see if they would consider waiving this requirement? Contractor will use standard charts which are provided from AST manufacturer.

RESPONSE: Comply with the specification requirement as stated.

226. Sheet E-002 Note #8 – states to remove/demolish existing NAVAID constant current regulators and NAVAID light/equipment. Please identify the location of this demolition and removal.

RESPONSE: The existing NAVAID (Airfield Navigational Aid) equipment vault is located in Hangar H105.

227. Sheet E-002 Note #8 – states to remove/demolish existing NAVAID constant current regulators and NAVAID light/equipment. Please provide details for this demolition and removal

RESPONSE: The existing NAVAID (Airfield Navigational Aid) equipment vault is located in Hangar H105.

228. Sheet E-403 calls out for AFLCS NAVAID Controls (By NAVAID). Please provide the anticipated installation timeline for this equipment.

RESPONSE: The AFLCS controls will be installed by the Government/SPAWAR - not "NAVAID". Installation timeline is not available.

229. Sheet E-403 calls out for Constant Current Regulator Switchgear to be installed. Will the constant current regulator switchgear be furnished and installed by NAVAID.

RESPONSE: Provide constant current regulator switchgear per contract documents. Constant Current Regulator Switchgear will not be furnished or installed by "NAVAID".

230. Sheet E-403 calls out for Constant Current Regulator Switchgear to be installed. If not furnished and installed by NAVAID, please provide specification and details of the equipment. The Constant Current Regulator Switchgear will be determined by the AFLCS NAVAID Controls (By NAVAID).

RESPONSE: Provide constant current regulator switchgear in accordance with the contract documents. Constant Current Regulator Switchgear will not be furnished or installed by "NAVAID".

231. Notice #3, Question #202 – Small business offerors are not required to submit a subcontracting breakdown. Is your intention to allow a small business to subcontract 100% of the work to a large business? By not requiring a small business to submit a subcontracting breakdown, this would allow for a large business to complete all of the work under a small business general contractor.

RESPONSE: No

232. Please clarify if demolition of Building #138 and Building #1674 are part of the scope of work for this contract

RESPONSE: Demolition of Buildings #138 and #1674 are included in the scope of work for this contract.

MARINE CORPS BASE HAWAII FACILITIES DESIGN & CONSTRUCTION STANDARD



By

Marine Corps Base Hawaii
Facilities Department
Engineering Branch

Kaneohe Bay, Hawaii

August 2008

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Introduction

This document is produced specifically for Marine Corps Base Hawaii (MCBH) by MCBH Facilities for the purpose of sustaining a higher level of care for its on-shore structures and Base property. MCBH is situated on O'ahu's windward coast and encompasses the entire Mokapu Peninsula. This locale is one of the most severe coastal environments in the Hawaiian Islands, and MCBH undertakes a proactive and diligent action to assure that all structures and equipment are maintained properly.

MCBH manages installations and natural resources located on a total of 4,500 acres throughout the island of O'ahu, which include Camp Smith, Manana Family Housing Area, Pearl City Warehouse Annex and Pu'uoloa Range Complex. These installations need not follow the MCBH Facilities Design and Construction Guideline, as the Navy Public Works Center - Pearl Harbor, manages the repair and maintenance for those areas.

The “**MCBH Facilities Design and Construction Standard**” is a supplement to the Unified Facilities Criteria (UFC) technical publications and the United Facilities Guide Specifications (UFGS) used by NAVFAC PAC and NAVFAC Hawaii. Non-government design and construction contractors shall also use this document to adhere to the requirements set forth. Base procedures and processes are also explained to assist architects, engineers, activity/ logistic managers, construction management personnel and general contractors. The “**MCBH Facilities Design and Construction Standard**” does stipulate design requirements that are above or in addition to the UFC and typical industry standards. There may be exceptions to certain requirements, where the Public Works Officer may allow deviation from this document. This document is subject to change.

Revisions to the August 2007 draft of the “MCBH Facilities Design and Construction Standard” are visually noted along the right side of the affected paragraph with a vertical line, as seen on the right margin of this page. Deletions from the August 2007 draft are noted with an arrow symbol, ◀, to the right of the affected paragraph.

1. **DIVISION 01 – GENERAL REQUIREMENTS**

a. **PROJECT DESIGN & REVIEW**

- i. Project designs are reviewed by various Marine Corps Base Hawaii agencies to assure that the structure or facility will:
 1. Satisfy the activity's function.
 2. Be easy and inexpensive to maintain.
 3. Be efficient and low-cost in energy consumption.
 4. Be well integrated with the Base Master Plan.
 5. Meet all applicable Federal, State and other local government regulations.

- ii. The major Base agencies that may review project designs and inspect construction are as follows (but not limited to):
 1. Activity or end user.
 2. Facilities Engineering Branch (LFPE)
 3. Maintenance Control Division (MCD)
 4. Energy Management Branch (LFPU)
 5. Environmental (LE)
 6. Provost Marshal Office/ Physical Security, (PMO)
 7. Communications and Information Systems Dept (G-6)
 8. Base Federal Fire Inspection
 9. Base Safety
 10. Fuel Services Division
 11. Marine Corps Air Facility – Logistics or Operations Officer

- iii. Standard of Procedure for Facilities Maintenance Support Services - Maintenance, Repair, Alteration (SOP for FMSS)
 1. Per MCBH Base Order , “SOP FOR FACILITIES MANAGEMENT SERVICES/SUPPORT”, the “**SOP for FMSS**”, **Appendix 1**, is required for all projects involving the maintenance, repair, alteration, or construction of facilities on MCBH, except those developed and funded under MCBH G-4 programs or those submitted as Work Requests into the Maintenance Control Division.

 2. The action proponent or activity that the project is under is required to fill out the upper portion of this form. Should the activity need assistance, Facilities Engineering Branch (LFPE) shall provide the necessary support.

- iv. Please verify with the MCBH project manager on which agencies would require their review, and how many copies to review. Allow and plan for approximately up to 10 to 20 working days for review and comments, depending on the size and complexity of the project. Specific requirements for design submittals are covered in following sections. Depending on the size of the project and the work involved, the above agencies listed in subparagraph a.ii. of this section would require:

- **Design drawings**
- **Basis of design**
- **Specifications**
- **Cost estimate**

b. RESPONSE TO DESIGN REVIEWS

- i. After MCBH Facilities provides review comments on the design, the designer shall respond to those comments within a reasonable time frame of 10 to 20 working days, depending on the size and complexity of the project. This is to assure there is a constant dialogue between the designers/engineers and MCBH Facilities, and to gauge if the design is in compliance with this document or if there are any conflicts, it would be resolved in the earlier design phases.

c. SITE APPROVAL

- i. All projects that will increase floor area on an exterior site or within a building; and if there is a change of building use (i.e., warehouse converted to administrative office) shall submit a "**Request for Project Site Approval**", **Appendix 17**, to the MCBH Planning Branch (LFPP). The activity or action proponent shall fill out Section A of the Site Approval form and submit it to LFPP. LFPP will complete the rest of the form and provide assistance as necessary.

d. CATEGORY EXCLUSION

- i. Most projects at MCBH will require a "**Category Exclusion**" (**CATEX**). Per the National Environmental Protection Act, the CATEX is submitted by the action proponent to assure there is minimal or no impact to the natural environment. The action proponent, MCBH activity may contact MCBH Environmental for assistance. Should the project have an adverse impact to the environment, MCBH Environmental may require an Environmental Assessment or a more complex Environmental Impact Statement.

- ii. Historic structures may need to be processed through the State of Hawaii Historic Preservation Office and the MCBH Environmental Office. Any construction work or activity that affect buildings, structures or property that are 50 years old or older will need to be reviewed per Federal law. MCBH Facilities and MCBH Environmental under a federal process called Section 106.
- e. ENERGY EFFICIENCY & SUSTAINABLE DESIGN
- i. For projects involving mechanical and electrical systems or equipment, MCBH requires to have the design reviewed by the Energy Management Branch. The Energy Management Branch's objective is to curb unnecessary waste of energy and water resources and promote conservation, energy efficiency and sustainable or "green" design in built facilities as well as work and living habits. The "**MCBH Standard Design/Construction Criteria for Energy Efficiency**", **Appendix 2**, describes these initiatives and provides architects and engineers the design strategies necessary to achieve these goals. Contact the MCBH representative, project engineer or Mr. Bill Nutting (~~257-2171 ext. 255~~) for a copy.
- f. COMMISSIONING
- i. Commissioning of all major air conditioning work is needed for the facilities' success in proper operation, maintenance and energy savings.
 - ii. Commissioning is a quality assurance-based process that delivers preventive and predictive maintenance plans, tailored operating manuals, and training procedures. The commissioning process formalizes review and integration of all project expectations during planning, design, construction, and occupancy phases by inspection and functional performance testing, and oversight of operator training and record documentation. Refer to **Appendix 2** and Division 25, Integrated Automation.
 - iii. MCBH Facilities requests that all major facility projects involving air conditioning systems serving 20 tons or more require commissioning along with a MCBH-compatible direct digital control system.

g. DESIGN DRAWING SUBMITTAL

- i. MCBH requires a CAD (Computer-Aided Drafting) file at the completion of the approved design and the as-built conditions at the completion of construction.
- ii. All construction and repair projects will require CAD (computer-aided drafting) drawings, which shall follow the UFC 1-300-09N (with Change 4 dated 18 Oct 07) standards for electronic design deliverables and CAD layering requirements. All CAD drawings shall be provided to MCBH Facilities on compact discs (CD) in AutoCAD format, to include all x-reference files to assure all construction drawing sheets are complete.
- iii. At each design phase and up to the final design, provide to MCBH Facilities **four half-size hard copies** of the design drawings, along with the electronic .pdf copies. The submittal set shall be labeled with the percent of completion and the date of issuance on each sheet. Additional copies may be required for the activity and other agencies – please coordinate this with the MCBH project manager. The final construction drawings shall also include **one full-size hard copy**. This full-size hard copy can be the field drawing set, which the as-built drawings are based on.

h. DESIGN SPECIFICATION SUBMITTAL

- i. At each design phase to the Final Design, provide to MCBH Facilities with **four hard copies** for each document - specifications, basis of design, calculations and cost estimate, and an **electronic copy** in .pdf or native format on compact disc(s).

i. EXISTING RECORD DRAWINGS

- i. To obtain record drawings of the MCBH sites/building, the A-E or contractor may check out full-size originals from Facilities' Record Library and make copies from an off-Base reproduction company at the A-E's or contractor's expense. The A-E must fill out the necessary information in the Drawing Check-Out Log Book, and return the originals to its bin within 5 working days. Electronic CAD or .tif files may also be available for projects.

- ii. The A-E or contractor may contact Carol Sinclair (at 257-2171 ext. 257, carol.sinclair@usmc.mil) or Richard Cassidy (at 257-2171 ext. 259, richard.cassidy@.usmc.mil) to assist in finding and checking out any record drawings, and to assure the Drawing Check-Out Log Book is signed and recorded.

j. CONSTRUCTION MANAGEMENT & FACILITY ACCEPTANCE

- i. Construction management will depend on what type of project. Facilities Engineering and Maintenance Control Division will do limited inspections to verify these MCBH requirements are followed.
- ii. Mechanical, HVAC, electrical and fire alarm systems will require MCBH inspections during certain milestones, most especially with installations dealing with HVAC direct digital controls (DDC), which the following specification sections will cover these disciplines in more detail.
- iii. Toward the completion of the project, MCBH ROICC/ FEAD shall contact the MCBH Facilities project manager to coordinate and schedule pre-final and final inspections with MCBH Facilities. Activities shall coordinate with the Facilities project manager on notifications and scheduling of personnel, furniture and equipment moving into new facilities or moving out of old facilities.
- iv. Operations and Maintenance binders (O&M's) will be required prior to the pre-final inspection, and the following specification sections will cover this in more detail.

k. KEYS TO EXISTING FACILITIES

- i. Keys to MCBH facility locksets are obtainable at the MCBH Help/Service Desk, located at Building 242. Keys borrowed from the Help/Service Desk are the responsibility of the borrower and copies of keys are only to be made by the MCBH Locksmith. Should the key be lost, the borrower will be responsible for all costs associated to changing the lockset.

I. TEMPORARY UTILITY USE

- i. For temporary utility service use, refer to the “**Private Party Utility Use Standard Procedure**”, **Appendix 3**, and the “**Information Sheet for Contractor/ Private Party Utility Connection and Use**”, **Appendix 4**.
- ii. This SOP clarifies the set up of an account with MCBH Comptroller, the “**Utility Sales Contract**”, **Appendix 5**, payment for temporary utility use and procedures in coordinating the service connections with MCBH Facilities and the Maintenance Repair Office (MRO).

m. UTILITY OUTAGES

- i. The contractor shall provide basic information of the requested outage, as in the date(s), duration, time(s) and reason for the outage.
- ii. MCBH Facilities assists in identifying which buildings, property and activities are affected by proposed utility outages. Once the affected buildings and activities have been identified, MCBH Facilities notifies all affected parties.
- iii. Notification periods: For utility outages affecting a single structure or land area, MCBH Facilities shall be notified no later than **10 working days** prior to the requested outage date(s). For larger outages affecting a multitude of buildings, activities and/or residents, the outage request shall be submitted a minimum of **20 working days** prior to the requested outage date(s). Once an outage request has been approved by the affected activities, the action proponent may require a public notification in the Base newspaper, the “Hawaii Marine”, and/or on the MCBH intranet e-mail. This may be at the discretion of the Base Command.
- iv. The MCBH Facilities manager or representative shall send out a final notification five working days prior to the scheduled utility outage.

- n. TEMPORARY FACILITIES & CONTROLS
 - i. Contractor staging and parking areas shall be planned and determined during the design phase to assure proper preparation at the start of construction. MCBH Planning Branch shall review and approve proposed areas for contractor staging and parking to assure it does not conflict with other planned projects.

- o. DIGGING WORK CLEARANCE REQUEST
 - i. Prior to any soil borings, trenching, excavation or any similar work that breaks ground, a **“Digging Work Clearance Request or Dig Permit”**, **Appendix 6**, shall be completed and approved by all applicable agencies as noted in the form. The activity, A-E or contractor shall obtain the electronic form from the MCBH Facilities project manager, complete the form and send it via e-mail to the MCBH project manager. Attached location maps and site plans indicating soil boring locations, trenching, building footprint are required and shall be in electronic .pdf format. Please allow at least 15 working days for the Digging Permit approval process.

- p. SITE VISITS & BASE PASSES
 - i. A base pass is required when a contractor or non-government person needs to access the Base grounds. The duration of base passes may be for one day to a maximum of one year, and is renewable. The contractor requires a MCBH sponsor who will contact the Front Gate Pass Office, and provide the applicant’s name, social security number and company name. Security Levels concerning terrorist threat will limit Base visitation. The following information is required to obtain the Base Passes:
 - 1. Driver’s State of Hawaii vehicle license
 - 2. Vehicle Registration
 - 3. Vehicle Insurance
 - 4. Vehicle Safety Inspection

q. MAINTENANCE-REPAIR ORGANIZATION REQUIREMENTS

- i. Access to equipment is critical for emergency repairs and periodic maintenance. The designer, contractor or supplier shall provide an access layout for mechanical, electrical and fire protection systems that would require preventative maintenance and inspections. During the design phase, the designer shall make a conscious effort to assure that such maintenance access is achievable.
- ii. The contractor shall provide shop drawings illustrating maintenance access routes/ locations and clearances at all air conditioning equipment, electrical panels, electrical switches and the like. Such mechanical and electrical equipment shall meet all applicable codes and regulations for access, as well as the manufacturer's required and recommendations for maintenance access. During this construction phase, MCBH shall review and approve the maintenance access shop drawings, prior to the ordering and installation of such equipment.
- iii. Test data and reports with record dates at the time of final installation of mechanical, electrical and fire protection systems are required, as it will assist the maintenance personnel in setting preventive maintenance plans.

r. OPERATIONS & MAINTENANCE MANUALS

- i. Operations and Maintenance manuals (O&M's) shall be submitted no later than **10 working days prior to the Pre-Punchlist walk-through** - so MCBH inspection personnel can familiarize themselves with the various systems and equipment.
- ii. TROUBLESHOOTING INFORMATION: Troubleshooting guidelines are required for the following type of equipment:
 - 1. Air conditioning systems
 - 2. Controls systems, i.e. direct digital controls
 - 3. Fire alarm systems
 - 4. Motorized equipment
 - 5. Electronic equipment

- iii. SPECIFIC DATA SUBMITTAL: The following data is required by MCBH Facilities. Further detail is discussed in its specification section.
1. Megger and Loop Resistance Tests for the electrical and fire alarm systems at the completion of the work.
 2. Test and Balance Report (TAB) of the air conditioning system with a letter of acceptance from NAVFACPAC or NAVFACHI at the completion of the work.
 3. Direct Digital Control system material submittal prior to ordering and installation of the material.
 4. Fire alarm and sprinkler shop drawings and material submittal.
 5. Copy of certification card of the person certifying backflow preventer installations.
- iv. DIRECTORY: Provide a project directory, which lists the general contractor, subcontractors and suppliers that have provided major material and equipment. Include the business and facsimile phone numbers, and e-mail addresses (if applicable).
- v. BINDERS: Provide **four** 3-ring binder hard copy sets, organized as follows:
1. Binder cover shall be clearly labeled with project name, building number(s), military base name/ location, date of issue, government agency administering contract.
 - a. Letter or statement of building completion with start dates of warranties.
 - b. Table of contents.
 - c. Project directory.
 - d. The construction sections or disciplines shall be organized as in the specification or CSI Master Format, 2004 edition. Dividers with labeled tabs shall organize and separate these sections in proper numeric order. These sections shall be combined together in one submittal, and shall not be separate submittals.
 - e. New Equipment List for each specification section. Provide an electronic copy of the entire New Equipment List.
 - f. Include warranty cards within the applicable section, i.e. roofing, chillers, etc.
 - g. General statement of general contractor's one-year warranty on labor and material.
 - h. Copy of "Transfer and Acceptance of Military Real Property", Department of Defense Form DD1354.

vi. ELECTRONIC COPY: Provide .pdf (latest Acrobat version) copy of the entire O&M package.

s. CLOSE OUT REQUIREMENTS, INSPECTIONS & TRAINING

i. The **“Transfer and Acceptance of Military Real Property” or DD1354, Appendix 18**, shall be submitted to MCBH Planning when the project is substantially complete and prior to the building’s occupancy. For detailed instructions on how to fill out this form, please refer to Unified Facilities Criteria (UFC) 1-300-08, dated 17 December 2003.

ii. AIR CONDITIONING SYSTEMS / DIRECT DIGITAL CONTROL: All parties involved with the air conditioning and direct-digital control systems, shall formulate a clear coordination plan to assure the systems design and installation are complete and to the satisfaction of MCBH. Commissioning shall be an integral part of inspections and final acceptance of the facility.

iii. PRE-PUNCH INSPECTION: MCBH Facilities Engineering, Maintenance Control Division (MCD) and Maintenance Repair Organization (MRO) may participate in the Pre-punch walk-through inspection with the MCBH Facilities Engineering Branch, the general contractor and the ROICC (if applicable) or the sponsoring government agent overseeing the project. Prior to the Pre-Punch Inspection, the general contractor shall deliver the O&M submittal, and shall have a contractor-generated punchlist.

iv. MECHANICAL , ELECTRICAL & MOTORIZED EQUIPMENT INVENTORY:

1. The general contractor shall fill out the **“New Equipment List Form”**, **Appendix 7**, to confirm the systems installation and supplement the equipment warranty information. This will provide the basis to MCBH’s Preventive Maintenance program.
2. The contractor and the ROICC (or applicable construction administrator) shall provide a walk-through tour of the project site, facility, building and/or structure to MCD and MRO to familiarize them with the locations and types of mechanical and electrical systems, as well as all other equipment that shall require preventive maintenance plans. During this time MCD shall confirm that “New Equipment List Form” has been completed to their satisfaction. This may occur during the Pre-punchlist Inspection.
3. The New Equipment List shall be submitted along with the Operations and Maintenance manuals, which is 10 working days prior to the Pre-Punchlist walk- through

- v. **TRAINING:** Training for mechanical, electrical, motorized and other systems and specialty equipment shall be provided to MCD and MRO personnel prior to the occupancy of the facility. A training or class syllabus or outline shall be submitted to MCBH Facilities five working days prior to the date of training. MCBH MCD shall determine the number training hours necessary for MCD and MRO. The following are typical examples of systems that will require training to MCBH MCD and MRO personnel:

1. Air conditioning systems
2. Direct Digital Control systems
3. Fire alarm & sprinkler systems
4. Hot water tank and heater equipment
5. Gate and door operators
6. Other specialty equipment – i.e., dock lift platforms, automatic sliding doors, etc.

- vi. **AS-BUILT DRAWINGS:**

1. As-built drawings shall be provided no later than 40 working days after the substantial completion. The drawings shall include all disciplines including the fire alarm and fire sprinkler information (if applicable).
2. Provide the original field office As-Built drawing set with “red-mark” notes and two half-size hard copies.
3. Provide one compact disk (CD) in electronic format, AutoCAD (current version used by MCBH) and one CD in .pdf Acrobat format.

2. **Division 02 – Existing Conditions**

a. MCBH Landfill Use

- i. MCBH landfill use is not allowed.
- ii. MCBH Environmental Branch and the Motor Transportation Shop shall review all issues involving the Base landfill.

b. Hazardous Waste Recovery Processes

- i. Requires review and approval by MCBH Environmental. Refer to the “MCBH Environmental Requirements for Demolition and Construction Projects”, **Appendix 8**.

- c. Subsurface Investigation
 - i. **“Digging Work Clearance Request (Dig Permit)”** required for soil borings, trenching and any other work which involves the breaking of ground.
 - ii. Verifications of the locations of underground utilities, shown or not shown, will be the responsibility of the construction contractor. The trade contractor shall have all utilities located prior to any demolition.
 - iii. All utilities shall be retained unless otherwise directed by the PWO. The trade contractor shall be responsible for all costs and work required to adjust existing and proposed utilities and appurtenances to finish grades within the limits of the work.
 - iv. If telecommunication lines are in or adjacent to the area of work, the MCBH G-6 Base Communications Officer (BCO) shall be notified immediately. When government telecommunication lines are involved the following agencies may need to be contacted:
 - 1. For fiber optic cables – NMCI and/or AT&T
 - 2. For cable television lines - Oceanic Cable
 - 3. For Joint Trunking System (JTS) cables - U.S. Army Garrison Hawaii, Directorate of Information Management, Infrastructure Management Group, Joint Trunking System & IT Project Manager, at Wheeler Army Air Field, Schofield Barracks.
 - 4. For all other unknown cables, contact the MCBH project manager, who may need to inquire with both the MCBH G-6 BCO and the MRO Electrical Shop supervisor.
- d. Erosion and Sedimentation Control
 - i. Requires review and approval by MCBH Environmental. Refer to **“MCBH Environmental Requirements for Demolition and Construction Projects”**.
- e. Storm Drainage for Design and During Construction
 - i. MCBH Environmental may require a **National Pollutant Discharge Elimination System (NPDES) permit**. Requires review and approval by MCBH Environmental and NAVFAC Pacific Environmental. Refer to **“MCBH Environmental Requirements for Demolition and Construction Projects”**.
- f. Traffic Signs and Signals
 - i. Requires review and approval by Provost Marshal Officer (PMO) Traffic Control and Base Safety Traffic Control.

- g. Removal of Existing Furniture and Equipment
 - i. Removal and/or disposal of furniture shall be by the activity or by Environmental Departments' Recycling Branch.
 - ii. The activity responsible for the removal of furniture and equipment shall coordinate the removal and/or disposal with Environmental Department's Recycling Branch.
 - iii. Funding for the removal of furniture and/or equipment shall be the responsibility of the activity, MCBH Base Supplies or by the discretion of the Public Works Officer.
- h. Plants
 - i. Plant selection shall be reviewed and approved by MCBH Environmental. Also refer to "MCBH Master Plan – Master Plant List", **Appendix 9**.

3. **Division 03 – Concrete**

- a. For concrete spall repairs use a migrating corrosion inhibitor (MCI) system, such as by Cortec Corporation or equal.

4. **Division 4 – Masonry**

- a. Retaining wall conditions shall be waterproofed to protect interior areas that are habitable, contain utilities or used for storage of materials.

5. **Division 5 – Metals**

- a. Design Strategy
 - i. Any metal component that is exposed to the salt-air conditions shall be stainless steel, aluminum or painted hot-dipped galvanized steel.
- b. Stainless Steel
 - i. Painted stainless steel material is preferred at exterior conditions. Should the stainless steel not be painted, the material shall be marine grade stainless steel at areas on and adjacent to water and oceanfront structures and property.
- c. Coatings
 - i. Provide proper surface preparation prior to painting and painting systems compatible to stainless steel, galvanized steel and other metal surfaces.

6. **Division 6 – Wood, Plastics & Composites**

a. **Termite Treatment**

- i. All structural wood members shall be termite treated with borate-based termiticide for general lumber use.
- ii. Chemonite[®] or ACZA (ammoniacal copper zinc arsenate) may be used on structural lumber inaccessible to users and concealed from view, due to its incising and color.
- iii. CCA (Chromated-copper-arsenate) treatment will not be accepted.
- iv. Any wood members that provide structural support as in blocking for cabinetry, roof or roofing assemblies and other such architectural components shall be termite-treated.

7. **Division 7 – Thermal & Moisture Protection**

a. **Design Strategies**

- i. Designers shall implement strategies to minimize humidity and moisture flow in closed exterior wall and roof assemblies. All roofs shall not have roof attic ventilation unless recommended by the architect and/or mechanical engineer and approved by MCBH Facilities. At air conditioned rooms, closed roof and exterior wall assemblies shall install a continuous vapor retarder to prevent condensation and condensation flow. At roof attic conditions, the design strategy shall combine a transfer grill system and assure a continuous vapor barrier at the roofline and exterior wall shall be implemented.

b. **Roofing types**

- i. For roofs more than 12 feet in height, a permanent ladder access to the roof is required.
- ii. Steel roof and wall panels are not allowed.
- iii. Aluminum roof and wall panels shall be appropriately coated or finished to hinder fading.

- c. Metal flashing shall be copper, unless where existing conditions conflict with differing metals. The MCBH Facilities project manager shall determine exceptions to copper.

- d. The leaders and the upper half of downspouts shall be of copper, and the lower half of downspouts shall be of exterior-rated (UV resistant) PVC pipe.

8. **Division 8 – Openings**

- a. Wood and steel doors and frames are for interior installations only.
- b. Fiberglass Reinforced Polyester Doors (FRP)
 - i. All exterior doors shall be of FRP material. Door frames shall be of the same material, painted stainless steel, painted aluminum or painted hot-dipped galvanized steel. Wood framing and trim for exterior doors are not allowed for exterior applications.
- c. Door Hardware
 - i. All exterior door hardware shall be non-ferrous with exception to stainless steel.
 - ii. Handsets that service primarily military service personnel shall have barrel or globe knobs in lieu of levers.
 - iii. Electronic card key locksets at exterior doors are susceptible to weather and are only permissible if they are weatherproof or rated as such. Coordinate and consult with the MCBH Locksmith and MCBH project manager for acceptable electronic card key locksets, which have been installed at MCBH facilities.
 - iv. All mechanical, electrical and telecommunication rooms or closets shall be keyed alike.
 - v. Provide four keys for each lockset, and provide four keys for each sub-Master and Grandmaster keys.
- d. Exterior windows shall be of aluminum or vinyl only.
- e. Barracks locksets shall conform to existing barracks hardware and software manufacturer and model.

9. **Division 9 – Finishes**

- a. For colors, follow the “**MCBH Kaneohe Bay Painting Guidance**”, **Appendix 10**. Consult with the project manager for variances.
- b. Do not paint door hinges and other door hardware.

10. **Division 10 – Specialties**

- a. Building Number Identification signs shall follow the “**MCBH Building Identification Number Detail**”. Refer to **Appendix 11**.
- b. MCBH Facilities shall review all exterior ground identification signs.

11. **Division 11 – Equipment**

- a. For trash bin collection physical layout, refer to “**MCBH Environmental – Barracks Recycling & Trash Enclosure Layout**”, **Appendix 12**.

12. **Division 12 – Furnishings**

- a. See Division 2, Existing Conditions on “Removal of Existing Furniture and Equipment”.

13. **Division 13 – Special Construction**

- a. Prefabricated Warehouse Systems
 - i. Roof slopes shall be a minimum ½” per foot.
 - ii. Metal roof panels shall only be J-rib type. Standing seam systems are not allowed.
 - iii. Metal panel siding shall overlap the edge of concrete floor slabs a minimum of 2” or raised concrete curbs shall be installed to protect the bottom tracks of the exterior wall framing.

14. **Division 14 – Conveying Equipment**

No MCBH requirements.

15. **Division 21 – Fire Suppression**

- a. Fire Protection Piping
 - i. Use copper pipe at all exterior conditions and areas where there is exposure to salt-air, i.e. naturally-ventilated warehouse and storage rooms.
 - ii. Paint all exposed fire sprinkler pipes red for identification.
 - iii. Label all valves and major system components with engraved label plates or with vinyl lettering on metal or plastic plates.
- b. Fire Sprinkler Inspection Data
 - i. Provide “Contractor’s Material and Test Certificate for Aboveground Piping” as per NFPA 13, Figure 24.1, as part of the O&M submittal package. Refer to **Appendix 19**.

16. **Division 22 – Plumbing**

- a. Backflow Preventers (BFP)
 - i. Provide certification of BFP’s.
 - ii. Provide the BFP certifier’s credentials – valid certification card.

17. **Division 23 – Heating, Ventilating and Air Conditioning**

- a. Air conditioning equipment exposed to the exterior environment shall be minimized or avoided.
- b. All air conditioning systems that are 5 tons or larger shall have a water-cooled condenser chiller system.
- c. Proper and adequate access for equipment needing servicing (and parts replacement) shall be provided as recommended by equipment manufacturers. During the design and design development phases, access layouts shall be provided to MCBH Facilities for review and approval.
- d. UV Lights shall be installed at air handler units and fan coil units.
- e. Provide two copies of the TAB (Testing and Balancing) report, all other air conditioning test data, field inspection reports and acceptance of the air conditioning system documents to MCBH Facilities.
- f. Notify MCBH Facilities on when ROICC conducts periodic inspections and witnessing of tests by the HVAC contractors. The MRO technicians may want to be present during the inspections and tests.

18. **Division 25 – Integrated Automation**

- a. Direct Digital Control (DDC) Connectivity for HVAC
 - i. Software must be by Allerton or Automated Logic Corporation.
 - ii. The “**MCBH DDC/EMS Standards, Specifications and Logic Diagrams**” shall be followed and is available from the MCBH Energy Management Branch (LFPU).
 - iii. Design shall be reviewed and approved by MCBH Energy Management Branch and Facilities.
 - iv. Also refer to Division 01, General Requirements on Commissioning.
- b. Fire Alarm System
 - i. Provide “Contractor’s Material and Test Certificate for Aboveground Piping” as per NFPA 13, Figure 24.1, as part of the O&M submittal package. Refer to **Appendix 19**.

19. **Division 26 – Electrical**

- a. General
 - i. Refer to **MCBH Maintenance Control Division’s – Electrical Standards, Appendix 14**. Consult MCBH MCD Branch for the latest version of this electrical standard.

- ii. Adequate access to all electrical equipment shall be provided per the manufacturer's instruction and applicable codes and regulations. During the design and design development phases, access layouts shall be provided to MCBH Facilities for review and approval.
 - iii. Electrical room doors shall open outward in case of emergency egress. The door shall have a hold-open function.
 - iv. Adequate lighting and convenience outlets(s) shall be provided for servicing equipment.
 - v. For underground utility construction requirements, refer to **MCBH Underground Utility Construction Requirements, Appendix 15.**
- b. Transformer Requirements
 - i. Stainless steel covers, painted (color: flat green, Federal color no.
 - ii. Oil-immersed.
 - iii. Two-position switch.
 - iv. Transformer identification label will be by the MCBH Maintenance-Repair Organization (MRO), Electrical Shop.
- c. Meter Requirements
 - i. All electric meters shall be Landis & Gyr AXS4 with two-way automated communication system (TWACS) or equal.
- d. Panel Requirements
 - i. Locate panels within building interiors to avoid weather exposure. If the panel needs to be on the exterior, provide a painted, stainless steel weatherproof panel. Freestanding exterior panels shall be mounted on plastic or synthetic lumber framing.
 - ii. Identify all panels clearly and consistent to the design drawings.
 - iii. All circuits within the panel shall be labeled clearly.
 - iv. A copy of the as-built electrical plans (full-size) shall be stored either in the panel door interior pocket (if provided) or on a wall-mounted document holder.
- e. Interior Lighting Requirements
 - i. Refer to the **MCBH Standard Design/Construction Criteria for Energy Efficiency, Appendix 2.**
 - ii. For high-bay light fixtures within warehouse or aircraft type facilities, provide twist-lock fixture connections for the ease of changing lamps without turning off the entire lighting circuit.
- f. Catalog Cut & Submittal Information

- i. Provide to MCBH Facilities with **one copy each** of the following mechanical and electrical equipment catalog cuts and submittals:

20. **Division 27 – Communications**

a. Data – Government-owned

- i. Design shall be reviewed and approved by MCBH G-6, Communications and Information Systems Department. Refer to **MCBH G-6 Outside Plant Requirements, Appendix 16.**
- ii. A $\frac{3}{4}$ " thick plywood mounting board (termite-treated) shall be provided to support the mounting of data equipment. G-6 and the data contractor, NCMI, shall dictate the size of plywood area.
- iii. Adequate area for mounting data equipment shall be coordinated with G-6 and NMCI. Appropriate clearances for servicing such equipment shall be provided.
- iv. Provide electrical outlet(s) and telephone outlet(s) per the request of MCBH G-6 and NMCI.
- v. Activity/user shall request data service to NMCI a minimum of three months prior to the activity's move into the facility
- vi. Activity/user shall notify G-6 on when they will need service.

b. Cable Television

- i. The designer shall contact the cable television service provider to confirm incoming service availability, equipment/material requirements, coordination of installation and scheduling of service.
- ii. Design shall be reviewed and approved by MCBH Facilities and the activity.
- iii. A $\frac{3}{4}$ " thick plywood mounting board (termite-treated) shall be provided to support the mounting of CATV equipment.
- iv. Provide electrical outlet(s) per the request of the CATV service provider.
- v. Activity/user shall notify the cable television service provider to set up an account and activate service.

21. **Division 28 – Electronic Safety and Security**

a. Fire alarm system

- i. Provide all fire alarm test data, inspection, testing, devices, appliances and circuits as per Figure 10.6.2.3 of the NFPA 72, Fire Alarm Code, 2002 Edition. These shall be included in the O&M submittal package to MCBH Facilities.
- ii. Notify MCBH Facilities on when ROICC conducts all periodic inspections and witnessing of tests.

- iii. Label all panels and major system components with engraved label plates or with vinyl lettering on metal or plastic plates.
- iv. Fully label all wires at the panel and assure the as-built drawings and wire diagrams are complete and consistent with the wire labels.
- v. Label conduit that houses the fire alarm cables.

22. **Division 31 – Earthwork**

No requirements.

23. **Division 32 – Exterior Improvements**

- a. Follow MCBH Base Exterior Architectural Plan or coordinate with the MCBH Engineering Branch architect(s).
- b. Landscape irrigation controller systems shall be hard-wired to the closest electrical source at a building/facility, in lieu of battery-powered systems.

24. **Division 33 – Utilities**

- a. Utility Identification
 - i. Paint all exposed pipe, backflow preventers, etc., as follows:
 - 1. Fire Supply – Red
 - 2. Domestic Water – Blue
 - 3. Effluent Water (Golf course irrigation only) – Purple
- b. Backflow Preventers (BFP)
 - i. Provide certification of BFP's.
 - ii. Provide the BFP certifier's credentials – valid certification card.

25. **Division 43 – Process Gas and Liquid Handling, Purification and Storage Equipment**

- a. Liquid Propane Gas Facility Requirements
 - i. All LPG tanks shall be secured to a concrete slab on grade. Installation of the tank shall be coordinated with the LPG tank supplier as contracted by MCBH Base Supplies or other agency.
 - ii. The supply line to the facility shall provide a T-connection to allow for auxiliary or emergency tank service. Refer to the “**Liquid Propane Gas Tank Detail**”, **Appendix 13**.
 - iii. Pipe bollards (painted OSHA yellow) shall protect the perimeter of the LPG tank against vehicular damage, and shall allow proper access for filling or servicing.

- iv. NAVFAC shall review and approve the LPG design and installation of the tank to assure that all applicable regulations are met.
- v. The claimant/ activity shall bear the cost for NAVFAC PAC/HI's fire protection engineering services on design, inspection and/or approval.

APPENDIX LIST

No.	Document	Date
1	SOP for FMSS - Standard of Procedure for Facilities Maintenance Support Services (MCBH Base Order 11010.3, Appendix C) *	January 2007
2	MCBH Standard Design/ Construction Criteria for Sustainability *	05 Jan 2005
3	MCBH Private Party Utility Use Standard of Procedure	15 March 2007
4	Information Sheet for Contractor/ Private Party Utility Connection & Use *	08 December 2006
5	Utility Sales Contract, NAVFAC 4330/16 (6-72) S/N 0105-LF-001-9714	N/A
6	MCBH Digging Work Clearance Request (Dig Permit) *	15 March 2007
7	MCBH New Equipment Inventory List *	N/A
8	MCBH Environmental Requirements for Demolition & Construction Projects *	22 November 2005
9	MCBH Master Plan – Master Plant List (from MCBH INRMP)	November 2006
10	MCBH Kaneohe Bay Painting Guidance	N/A
11	MCBH Building Identification Number Detail	N/A
12	MCBH Environmental – Barracks Recycling & Trash Enclosure	March 2002
13	MCBH Liquid Propane Gas Tank Detail	27 October 2006
14	MCBH Maintenance Control Division – Electrical Standards	April 2007
15	MCBH Underground Utility Construction Requirements	15 August 2005
16	MCBH G-6 Outside Plant Requirements	20 May 2002
17	Request for Project Site Approval - NAVMC 11069 *	May 1995
18	Transfer and Acceptance of Military Real Property or DD1354 *	March 2004
19	Construction Contract Fire Protection Signature Checklist, NFPA Fire Sprinkler & Fire Alarm Inspection Forms	

* This symbol indicates that the document is available in the electronic, native format so the required data can be easily inserted into the document. For these electronic copies, consult with the MCBH project manager.

APPENDIX C – SOP for FMSS

Standard of Procedure for Facilities Maintenance Support Services

Maintenance, Repair, Alteration or Construction Approval Form

This form is required for all projects involving the maintenance, repair, alteration, or construction of Marine Corps facilities administered by Marine Corps Base Hawaii Facilities Department, except those developed and funded under existing MCBH G-4 programs or those submitted as Work Requests into the Maintenance Control Division.

The SOP for FMSS must be approved by the Facilities Dept. prior to the start of any work - per MCBH Base Order 11010.3

TO BE FILLED OUT BY CLAIMANT OR ACTION PROPONENT.

SUBMIT TO FACILITIES DEPARTMENT, ENGINEERING BRANCH (Code LFPE)– BUILDING 242 (corner of 2nd & D St.'s)

1. PROJECT TITLE:		OFFICE USE ONLY
2. BUILDING No./ SITE AREA:		
3. Brief Description of Work:		
4. Activity / Action Proponent:	5. Point of Contact (Print Name):	DATE RECEIVED BY MCBH Facilities
6. Telephone/ E-mail:	7. PROVIDE DRAWINGS OR SKETCHES OF THE REQUESTED/ PROPOSED WORK. SEE FACILITIES LIBRARY AT BUILDING 242 FOR EXISTING BUILDING FLOOR PLANS, SITE AND UTILITY PLANS.	
8. SUBMIT Category Exclusion (CATEX) to MCBH Environmental Branch. Call 257-6920 ext. 229 for assistance.		
9. WILL UNDISTURBED SITE AREA BE DEVELOPED? YES NO If yes, a "Request for Site Approval" Form (NAVMC 11069 form) shall be submitted to MCBH Facilities Dept., Planning Branch. Call 257-2171 ext. 254 for assistance.		
10. WILL THE WORK REQUIRE ANY DIGGING, TRENCHING OR ANY GROUND DISTURBANCE? YES NO If yes, a "Digging Work Clearance Request" (aka "Dig Permit") is required prior to any ground disturbance. Call 257-2171 ext. 259 for assistance.		
11. IS THE WORK REQUIRED TO SUPPORT AN INCREASE IN PERSONNEL / BILLETTS IN THE SUBJECT FACILITY? YES NO	12. IS TEMPORARY RELOCATION OF PERSONNEL AND/OR EQUIPMENT NECESSARY? YES NO	
13. WILL THE WORK AFFECT VEHICULAR/ PEDESTRIAN TRAFFIC OR BASE SECURITY? YES NO	14. WILL THE WORK INVOLVE TELEPHONE, DATA/COMPUTER &/OR CABLE TELEVISION SERVICES? YES NO	
15. WILL THE WORK INVOLVE/ AFFECT FIRE PROTECTION SYSTEMS OR LIFE/ SAFETY ISSUES? If yes, the activity is required to obtain fire protection engineering services from NAVFAC HI or NAVFAC PAC for design review and approval, as well as installation inspection & acceptance. Federal Fire Department shall be notified and provided plans and the scope of work. YES NO		

FOR ANY ANSWERS MARKED "YES" ABOVE, PLEASE PROVIDE A BRIEF EXPLANATION ON A SEPARATE ATTACHED SHEET.

TO BE FILLED OUT BY MCBH FACILITIES DEPARTMENT

COMMENTS/ REQUIRMENTS FOR APPROVAL:	Approved	Approved as Noted	Rejected & Re-submit

Facilities Department, Signature	Print name	Date
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MCBH STANDARD DESIGN/CONSTRUCTION CRITERIA FOR SUSTAINABILITY

by MCBH Energy Manager, Bill Nutting (LFPU) Revised: 5 Jan 2005

#	REQUIREMENT	RESPONSE FOR PROJECT: _____
1	OMITTED/ NOT USED	
2	<p>Sustainable Design: Comply with DoD UFC 3-400-01, which requires that "sustainable design shall be an integral part of every project." Comply with NAVFACINST 9830.1 to meet the "LEED Certified" level of sustainability. Design analysis submittals shall include the U.S. Green Building Council's LEED checklist and score card, completed for each building/project. The design shall be improved as necessary to at least qualify for minimum LEED certification (at least 26 points). This requires that all prerequisites be met, including Fundamental Building Systems Commissioning.</p>	
3	<p>Commissioning: Provide commissioning services to insure that facility owner/occupant requirements are fulfilled in the design and construction and that all electrical, mechanical, and control systems provided operate properly and fulfill their intended purpose. This is in addition to QA, QC and TAB services. Commissioning services shall be provided in accordance with the current USGBC LEED Reference Guide (EA Prerequisite 1). A Commissioning Agent, not directly involved in design or construction of the project, shall be provided to represent MCBH and lead the Commissioning Team. A project-specific Commissioning Plan shall be provided prior to design, and updated/included with design and construction submittals. Likewise, a Commissioning Report shall be provided after all but seasonally-deferred functional testing is complete.</p>	
4	<p>Orientation: Where possible, long axis of building should be oriented East-West to minimize solar heat gain, while taking advantage of trade winds.</p>	
5	<p>Site Plant: For projects with two or more air-conditioned buildings co-located, provide one chilled water/hot water system, incorporating requirements above, for greater diversity and efficiency.</p>	

MCBH STANDARD DESIGN/CONSTRUCTION CRITERIA FOR SUSTAINABILITY

by MCBH Energy Manager, Bill Nutting (LFPU)

Revised: 5 Jan 2005

#	REQUIREMENT	RESPONSE FOR PROJECT: _____
6	<p>Daylighting: Where practicable, provide daylighting with windows, skylights, light shelves, etc, coupled with dimming ballasts, photocells, and other controls to maximize daylighting while minimizing artificial lighting. Provide careful positioning and detailing to minimize heat gain that may result from the daylighting. An example of a system that accomplishes this is the Component Daylighting System by Universal Natural Light, LLC.</p>	
7	<p>Glazing: Provide low-e/spectrally selective glazing for all glass subject to direct solar exposure. Minimize East and West facing glazing.</p>	
8	<p>Bldg Insulation: Roof insulation shall be provided directly on the roof deck, or on the underside of the roof deck. Ceiling insulation, which requires attic ventilation, is not acceptable. Soffit, gable, and ridge vents shall not be provided in air conditioned buildings.</p>	
9	<p>Rebates: Provide energy efficient lighting, controls, and equipment which qualifies for HECO rebates, which will go directly to the Contractor, in exchange for reduced contract price. Provide copy to MCBH (LFPU) of data and analysis to back-up rebate applications to HECO. MCBH will provide Third-Party Authorizations to HECO for rebate checks to be sent directly to the Contractor.</p>	
10	<p>Water Meter: Provide water meter, with bypass, for each building. Equip water meter with automatic remote meter reading through EMS LAN, wireless communication, or powerline carrier.</p>	
11	<p>Hot Water: As primary source for domestic hot water, provide solar panels or waste heat recovery from A/C units. Waste heat recovery will also increase efficiency of A/C units. Provide back-up source for domestic hot water with propane-fired water heater, air-source heat pump, or electric resistance water heater, in descending order of preference. Using new/additional energy as primary source of hot water is not justified, and violates the Energy Policy Act and EO13123 in principle, if not in fact. Back-up water heater shall provide better than 78% minimum thermal efficiency and maximum 2.25% standby loss required by ASHRAE Standard 90.1b-1992. Consider Cyclone XHE (or equivalent) LP Gas-fired water heater for back-up. Domestic hot water shall be stored at 140°F, recirculated at 124°F, and delivered at 115°F to avoid Legionella and scalding.</p>	
12	<p>Air conditioning should be designed first to control humidity and air quality, then to cool. Provide design/analysis to fulfill both maximum and minimum conditions of heat and humidity. Consider VAV mechanical ventilation system with dessicant dehumidification and, with cooling and UV-C emitters, controlled by DDC and humidistat, and thermostat in each room/zone. Relative humidity often governs, especially during unoccupied periods, and IAQ must be controlled to prevent microbiological growth, but temperature is not a consideration.</p>	

MCBH STANDARD DESIGN/CONSTRUCTION CRITERIA FOR SUSTAINABILITY

by MCBH Energy Manager, Bill Nutting (LFPU)

Revised: 5 Jan 2005

#	REQUIREMENT	RESPONSE FOR PROJECT: _____
13	<p>Indoor Air Quality/HVAC Design: Design analysis submittals shall include consideration for effective dehumidification and humidity control. The air conditioned space shall have a higher Sensible Heat Factor (SHF) than the equipment conditioning it. Provide a separate, dedicated system designed to supply outdoor air at a 50 degree dew point and room temperature. Design supply air to be slightly over-balanced to slightly pressurize the space. The separately conditioned outside air shall be introduced into the supply side of the air conditioner, not the return air side. Include analysis of SHF for both the A/C equipment and the load/space. Relative humidity in the space shall always be maintained below 60 percent, under all conditions, during all seasons.</p>	
14	<p>Thermostats shall be limited-range type, with sensor located behind return air grille, unless approved otherwise.</p>	
15	<p>UV-C: Provide UV-C emitters at each air handler, fancoil unit, and packaged ACU over 5 Tons to maximize IAQ and minimize need for duct cleaning and energy loss due to clogged filters and coils. Conform to manufacturer's specs for proper sizing and installation. Wire UV-C emitters to be always energized, except when maintenance access panels are opened. Provide DDC sensors/connection to monitor static air pressure and operation of the UV-C.</p>	
16	<p>DDC/EMS: Provide Building Automation System (BAS) consisting of Direct Digital Controls (DDC) and metering connected to the MCBH Energy Management System (EMS), via Local Area Network (LAN). All components shall communicate all digital and analog data and signals in ANSI/ASHRAE BACnet protocol over Ethernet LAN. Conform to MCBH DDC/EMS Standard Specs and Logic Diagrams. (Copy will be provided on CD-R, upon request). Provide Web-Enabled application and programming software and graphics of DDC-controlled systems/components, thermograph floor plans, location maps, trend log graphs, etc. to visually display operating parameters and performance, in real-time.</p>	
17	<p>DDC/EMS: Provide DDC Points Matrix drawing to indicate components controlled and inputs/outputs. Provide single-line diagram of all DDC and EMS components, indicating locations and interconnections on-site and off-site. Provide control diagram and logic diagram for each type of system controlled by DDC.</p>	
18	<p>DDC/EMS: Provide/indicate interconnection between DDC controllers in each building for connection to Base-Wide EMS LAN. Provide software, firmware, and hardware as required for DDC to communicate over TCP/IP ethernet LAN to main monitoring/control station at Bldg 201.</p>	
19	<p>DDC/EMS: Provide digital electronic KWh meter at each building/occupancy and connect to DDC Building Control panel. Provide software for remote meter reading, logging, and reporting.</p>	

MCBH STANDARD DESIGN/CONSTRUCTION CRITERIA FOR SUSTAINABILITY

by MCBH Energy Manager, Bill Nutting (LFPU)

Revised: 5 Jan 2005

#	REQUIREMENT	RESPONSE FOR PROJECT: _____
20	Transformers shall comply with high efficiency ratings of NEMA Standard TP 1-1996, and be provided with stainless steel enclosure.	
21	Exterior Lighting: Pole-mounted exterior lighting shall be provided with pulse-start metal halide luminaires with full cutoff, and controlled by one photocell on each lighting circuit (not on each luminaire). Timers shall not be provided, except in approved special applications.	
22	Exterior Lighting: Building-mounted exterior security/area lighting fixtures shall be high-efficiency fluorescent with motion detector, and controlled by one photocell on each lighting circuit.	
23	Indoor Lighting: For administrative, classroom, and similar occupancies, provide acoustical suspended, full access ceiling with recessed luminaires. Luminaires shall provide an optimum mix of directional and diffuse reflected light for balanced illumination between task and proximate walls, enhanced visual comfort and minimized shadows. Provide high-efficiency T-5 and/or T-8 fluorescents, with electronic ballasts. An example of luminaires meeting these requirements is the Lithonia AV Avante series.	
24	Lighting Controls: Provide occupancy sensor controls to override manual switching for lighting in Laundries, Lounges, Bulk Storage Rooms, Public Toilets and other common use areas of similar occasional use.	
25	Motors and Drives: Provide high-efficiency motors per NEMA Standard MG-1. Wherever loading varies, provide variable frequency drives (VFDs).	
26	CO₂ Controls: In rooms with variable occupancies, provide CO ₂ sensor control for VAV terminal units or air handlers.	

**PRIVATE PARTY UTILITY USE
STANDARD PROCEDURES**

Marine Corps Base Hawaii (MCBH), Kaneohe Bay

A Private Party, hereinafter called the Purchaser, requiring utility services at MCBH Kaneohe Bay shall comply with the procedures listed below.

I. ESTABLISH A UTILITY ACCOUNT

- A. Set up an account with MCBH Comptroller (CR) by completing and providing the attached Private Party Information Sheet and Utility Sales Contract, to the CR, copy to MCBH Facilities Dept (LFP), at least 10 work days prior to connection and start of utility services. Contact CR Accounting at 257-7748 and LFP Energy Management Branch at ~~257-2171, extension 284.~~

- ~~B. Provide a company check written in U.S. Dollars, payable to "Treasurer of the United States" to CR in the estimated amount of the cost for utilities for the duration of proposed use. You may call the MCBH Energy Management Branch at 257-2171, extension 284, to obtain an estimate for monthly utility charges.~~

II. SET UP UTILITY CONNECTIONS

A. Connection(s) to MCBH Potable Water Distribution System

1. For irrigation and truck-fill use, provide a backflow preventer (BFP) at the connection to MCBH water system. The BFP shall not rest on the ground, but must be elevated at least 18" above the ground surface. A qualified tester must certify the backflow preventer (BFP) after installation. Provide a copy of the tester's personal Backflow Certification Card, with his name and the expiration date, along with his written certification of the BFP installation, to the Facilities Department, prior to installation. The BFP shall be a Reduced Pressure (RP) type.
2. For temporary water use, connections may be made to fire hydrants, only with standard "quick" disconnect couplings, to ensure the pipe assembly can be removed quickly by the Fire Department in the event of fire. Provide a backflow preventer and certification, as stated above.
3. Provide a water meter attached to the assembly.
4. If water service from a fire hydrant is requested, a copy of the completed Information Sheet shall be provided to the MCBH Facilities Project Manager, who will forward it to the Federal Fire Department, Pearl Harbor.

5. The Facilities Department Energy Management Branch shall be notified at least 5 work days before water use will commence so that a "before" meter reading can be made.

B. Connection(s) to MCBH Electrical Distribution System

1. Provide a single-line electrical diagram and estimated load requirements for the proposed connection to the MCBH Facilities (Project Manager) for review and approval. Indicate on diagram how cables will be routed.
2. Provide a Kilowatt-hour meter (certified and calibrated). MCBH may require putting a MCBH seal on the meter.
3. To request final connectivity by the MCBH MRO Electric Shop, contact the MCBH Facilities Department Service Desk at 257-2380 no less than 10 working days prior to scheduled work.
4. Contact the Energy Management Branch (~~257-2171 ext 249~~) to register the meter and log in the start date of billing.

C. Telephone Connection

1. Contact MCBH G-6, Communications and Information Systems Department, Telephone Branch at 257-2323, in advance.
2. Non-government telecommunication services cannot hook up to government telecommunication services. They will need to contact the Base's commercial telephone service provider.

III. BILLING:

The meter(s) will be read monthly and the established account will be debited accordingly. Electricity and water are provided at Private Party Rates established by MCBH. Electricity rates vary monthly, coincident with and equal to a blended rate based on the HECO "Schedule G" rate. Water rates vary coincident with the Board of Water Supply "Non-Residential" rate, with addition for MCBH delivery and administration costs. MCBH Comptroller will notify purchaser if/when additional funding is required to cover utility charges. Any balance remaining in the account at the end of the service will be returned to the purchaser.

IV. TERMINATING UTILITY CONNECTIONS/METERS

- A. Contact the MCBH Facilities Department Service Desk at 257-2380 to request any electric or water outages required to disconnect the Purchaser's meters. Depending on the severity of the outage, a 20-work day notification would be required for major circuit outages; and a 10-work day notification would be required for outages affecting one to two buildings.

- B. The Facilities Department Energy Management Branch shall be notified at least 5 work days before removal of the meter so that a final meter reading can be made.
- C. The Energy Management Branch will notify the comptroller and provide the final consumption quantities for final billing.

INFORMATION SHEET FOR
CONTRACTOR/PRIVATE PARTY
UTILITY CONNECTION & USE AT MCBH KANEOHE BAY, HAWAII

SPONSORING/CONTRACTING ORGANIZATION/AGENCY SHALL PROVIDE THIS INFORMATION FOR ALL CONTRACTORS AND OTHER PRIVATE PARTIES REQUIRING UTILTIY USAGE (ELECTRICIY/WATER) AT THE MARINE CORPS BASE HAWAII, KANEOHE BAY. PLEASE SUBMIT COMPLETED FORMS TO THE MCBH COMPTROLLER OFFICE, COPY TO FACILITIES DEPARTMENT.

SPONSORING/CONTRACTING ORGANIZATION/DEPARTMENT: _____

CONTACT PERSON: _____

PHONE NUMBER(s): _____

ALTERNATE PERSON: _____

PHONE NUMBER(s): _____

PRIVATE PARTY COMPANY NAME: _____

CONTACT PERSON: _____

PHONE NUMBER(s): _____

ALTERNATE PERSON: _____

PHONE NUMBER(s): _____

CONTRACT/LEASE/LICENSE NUMBER: _____

START DATE: _____ END DATE: _____

LOCATION OF CONNECTION POINT(s)/METER(s)...

ELECTRICITY: _____

MULTIPLIER: _____

WATER: _____

MULTIPLIER: _____

SERVICES NEEDED FROM MCBH LABOR FOR HOOK-UP (DESCRIBE):

ELECTRICITY: _____

WATER: _____

ESTIMATED MONTHLY CONSUMPTION...*

ELECTRICITY: _____

WATER: _____

* IF UNABLE TO ESTIMATE CONSUMPTION, PLEASE INDICATE TYPE OF USAGE, i.e., USE OF POWER TOOLS, AIR CONDITIONED CONSTRUCTION SITE OFFICE, ETC.

UTILITY SALES CONTRACT
NAVFAC 4330/16 (6-72) S/N 0105-LF-001-9714

THIS CONTRACT, entered into as of _____, between the UNITED STATES OF AMERICA, hereinafter called the Government, represented by the contracting officer executing this contract, and _____ whose address is _____

_____ hereinafter called the Purchaser.

1. The Purchaser, located in or in the immediate vicinity of _____ agrees to purchase and receive from the Government _____ service as follows:

Description _____

Requirements _____

Premises _____

Delivery Point _____

Metering: _____ Deposit _____

Billing: on _____ by _____

Payable: on _____ at _____

Rates _____

Officer in charge _____

for use exclusively by Purchaser, without any right to assign or sublet, at the Purchaser's premises and not for resale or redistribution. Government shall have the right to change said rates and deposit amount at any time on thirty (30) days notice. Government may apply said deposit to the payment of unpaid bills or of any other charges or damages hereunder. Subject to Government's advance approval and supervision, Purchaser at its sole expense shall furnish, install, operate and maintain all new facilities required for obtaining service, including suitable metering and regulating equipment and service connections to Government's utility system. Such facilities shall be removed and Government premises restored to their original condition by the Purchaser, or by the Government at Purchaser's expense within a reasonable time after termination of the contract. Purchaser agrees to purchase this service from any private or other public source when available and adequate.

2. The Government shall sell and deliver only such service as it may from time to time be willing to deliver and may, at any time, discontinue service hereunder. Either party may terminate this contract on 30 days written notice, provided, however, that during any period of national emergency Government may terminate on 24 hours notice.

3. The Government, its officers, agents and employees shall not be responsible for loss of or damage to property of Purchaser or property of others, or for personal injuries to Purchaser's officers, agents, servants or employees, or to other persons arising from or incident to the furnishing of, or the failure to furnish, the service provided for hereunder, nor for any other damage or loss of profit suffered by Purchaser arising from or incident to the furnishing of, or the failure to furnish, the service provided for hereunder, and Purchaser shall hold and save Government, its officers, agents and employees harmless from any and all such claims or liabilities.

4. No member of or delegate to Congress, or resident commissioner, shall be admitted to any share or part of this contract, or to any benefit that may arise therefrom; but this provision shall not be construed to extend to this contract if made with a corporation for its general benefit.

THE UNITED STATES OF AMERICA

(Purchaser)

By _____

By _____

Title _____

DIGGING WORK CLEARANCE REQUEST

MCBH Kaneohe Bay, Facilities Department

Project Title:

FOR FACILITIES USE ONLY

DWCR NO:

The Digging Work Clearance Request (*DWCR*) is required for any excavation work that may disrupt utility services, vehicular or aircraft traffic flow, protection provided by fire and intrusion alarm systems, or routine activities of Marine Corps Base Hawaii, Kaneohe Bay. The clearance process tries to identify, as much as practicable, any known, potentially hazardous work condition and is to help prevent accidents. It also informs key Base activities of the digging work and coordinates the required work with these activities to keep customer inconvenience to a minimum. ***The DWCR and CATEX must be approved prior to the start of work.***

1. INSTRUCTIONS:

The contractor/excavating activity shall complete blocks 2 thru 15 below. Submit this **ORIGINAL MS Word Document with plans or drawings showing the location, width, and depth of excavation in an *Electronic Format*** to MCBH Kaneohe Bay, Facilities Department via the Contracting Officer and/or Project Manager. Allow at least **20 Working Days** before commencement of work for clearance review by Facilities Department. Upon receipt of the approved and signed DWCR, the contractor/excavating activity may proceed with the excavation and shall follow all precautionary notes and directions as provided.

2. **Required** Documents prior to APPROVING this Dig Permit.

- (a) An SOP for FMSS (*Appendix C*) has been received and approved by LFPE yes no
(b) An Environmental Category Exclusion (*CATEX*) has been submitted and approved. yes no (*Please Include*)
If No, explain why:

This DWCR will **not be** approved without an Approved CATEX

3. SITE LOCATION: (*Include a Site Map*)

4. PROJECT TARGET START DATE:

5. PROJECT MANAGER (MCBH):

6. PHONE NO:

POC:

7. CONTRACTOR:

8. COMPANY PH.#:

FAX #:

POC:

ADDRESS:

9. CONTRACT NO.:

10. WORK ORDER/JOB NO.:

11. TYPE OF WORK INVOLVED: (*check items that apply*)

UNDERGROUND UTILITIES: WATER SEWER DRAIN ELECTRICAL TELEPHONE FIBEROPTIC

EXCAVATION: TRENCHING FOUNDATION/SLAB DE-WATERING SOIL BORING/TEST PIT

OTHER:

12. DESCRIPTION OF WORK: (*Required*)

- * **Provide** a work description including the method of excavation (*use of hand tools or type of powered equipment*)
 - * **Provide** description of any precautionary measures to be followed and safety devices to be used such as shoring.
 - * **Provide** drawings or sketch showing the depth, width and length of the excavation and any known utilities that may interfere with the work. (*If more space is required, attach separate sheet*)
- The area involved has not has been staked or clearly marked.
Attached sketch: no yes

Project Title:	<small>FOR FACILITIES USE ONLY</small> DWCR NO:
<p>13. The contractor/excavating activity shall perform a general site survey prior to any excavation. You are Required to Tone Area; The activity will make every effort to locate unknown utilities posing a conflict with their work insofar as these utilities fall with the proposed excavation limits and are detectable by industry-standard underground utility locating equipment. If water valves; sewer, drain, or electrical manholes; recent trenching scars; or pavement trench patches are found where no utility line is shown on the drawings/sketches provided, the contractor/unit shall contact the undersigned prior to any excavation. _____ Initial/Date</p>	
<p>14. There are known existing primary utilities shown for the area in question <input type="checkbox"/> yes <input type="checkbox"/> no _____ Initial/Date</p>	
<p>15. The equipment operator shall closely monitor the excavated material for significant changes in color, size (gradation) and type of material. Such changes may indicate the presence of an unmarked utility. If such changes are noted, the contractor/unit shall cease all excavation by equipment and probe by hand. If any questions arise, contact the undersigned. _____ Initial/Date</p>	
<p>The contractor/excavating activity shall have an approved Digging Work Clearance Request at the work site at all times during excavation.</p> <p>The Digging Work Clearance Request does NOT relieve the contractor/excavating activity from responsibility for any damage to underground utilities encountered during excavation.</p> <p>All known existing primary utilities are shown on the attached sketches/drawings. Those not shown in the original sketches/drawings were added. The contractor/excavating activity shall locate each intersecting line and all other lines in the general vicinity of the excavation prior to any excavation. The utility lines shown on the drawings/sketches represents approximate locations only.</p> <p>In case of emergency, contact Mr. Lee Stebbins, Facilities Department, Maintenance Division, phone 257-2171, ext. 280.</p> <p><u>NOTE:</u> If the actual work differs from the written Description of Work (Item No. 12 above), this DWCR will be voided and <u>MUST</u> be Resubmitted. This Dig Permit shall be TERMINATED 180 days after the signed approval date below unless otherwise noted.</p> <p style="text-align: center; margin-top: 20px;">Digging Work Clearance Request No.# _____ is hereby: <input type="checkbox"/> Approved. <input type="checkbox"/> Disapproved</p> <p style="text-align: right; margin-top: 20px;">_____ LCDR Lance Lee, LFP / Date FACILITIES DEPARTMENT, 257-2171, Ext. 223</p>	

CLEARANCE REVIEW

(To be filled out by MCBH Departments)

Project Title:		FOR FACILITIES USE ONLY	
ORGANIZATION		SPECIAL INSTRUCTIONS	SIGNATURE / DATE
9. F A C I L I T I E S D E P T	A. WATER LINES WATER DRAINAGE LINES <i>Phil Lum, 257-2171 ext.246</i>		
	B. SEWER DRAINAGE LINES <i>Phil Lum, 257-2171 ext.246</i>		
	C. ELECTRICAL LINES <i>Ron Hochbrueckner,</i> 257-2171 ext.250		
	D. FIBER OPTIC SYSTEM <i>Ron Hochbrueckner,</i> 257-2171 ext.250		
10. PHYSICAL SECURITY LAN/FIBER SYSTEM <i>GySgt Scrabeck, 257-8556,</i> (or current POC)			
11. MILITARY POLICE TRAFFIC CONTROL <i>Sgt Petty, 257-1146</i> (or current POC)			
12. FUELS DIVISION <i>(Henry Puulei, Ed Campbell</i> 257-3187)		Fuel Lines: <input type="checkbox"/> Active <input type="checkbox"/> Non Active	
13. AT&T TELEPHONE HAWAIIAN TELEPHONE <i>Sgt Saxe, 457-2323 ext.226</i> (or current POC)			
14. CABLE TELEVISION OCEANIC <i>(L. Iha , 625-8443 Fax:625-5888)</i>			
15. ENVIRONMENTAL <i>(Ron Yamada 257-6920 ext.229)</i> <i>(J. Cleghorn, 257-6920 ext.254)</i>		<input type="checkbox"/> E.A. <input type="checkbox"/> CATEX <input type="checkbox"/> Other Comments:	
16. SAFETY <i>(Clayton Lihilihi, 257-1830)</i>			
17. EXPLOSIVE SAFETY <i>(Clayton Lihilihi , 257-1830)</i>			
18. OTHER (Specify)			

Marine Corps Base Hawaii - NEW EQUIPMENT INVENTORY LIST

PROJECT NAME:								DATE SUBMITTED:		
MCBH FACILITIES POC:					ROICC POC:			NAVFAC PAC/HI POC:		
	Bldg. No.	Specific Location (Floor/Level, Room Name/No., East Wall, etc.)	Description	Manufacturer	Vendor	Vendor POC/ Phone No.	Model #	Serial #	Installation Date	Warranty Expiration Date
1										
2										
3										
4										
5										
6										
7										
8										
9										
10										
11										
12										
13										
14										
15										

NOTES:

SUBMITTED BY:

APPENDIX 7

MCBH ENVIRONMENTAL REQUIREMENTS FOR DEMOLITION AND CONSTRUCTION PROJECTS

Applicable Standard Specifications

The following Standard Specifications should be followed to assure compliance with applicable environmental regulations and procedures.

- 01572N Waste Management
- 01575N Temporary Environmental Controls
- 01670 Recycled/Recovered Materials-Affirmative Procurement
- 02220N Site Demolition
- 02231N Clearing and Grubbing
- 02630N Storm Drainage
- 13181N Engineering Control of Asbestos Containing Materials
- 13283N Removal and Disposal of Lead-Containing Paint
- 13284N Removal and Disposal of Polychlorinated Biphenyls (PCBs)
- 13286N Handing of Lighting Ballasts and Lamps Containing PCBs and Mercury

Construction and Demolition Waste

1. Waste Management Guide Specification

- A. Waste Management Plan: Submit a Waste Management Plan (enclosure 1) as a contract deliverable to the MCBH environmental solid waste compliance manager via the ROICC for review and acceptance.
- B. Diversion and Waste Tracking Reports: Divert (recycle/reuse) all demolition and construction debris to the greatest extent practicable. Report ALL solid waste diverted and construction debris disposed (soil, concrete, asphalt (co-planed or chunk), recyclable, wood, CMU, metals, etc.) by completing the Contractor Waste Reporting Form (enclosure 2) and must be submitted directly to both the MCBH environmental solid waste compliance manager and the ROICC as a contract deliverable.

2. Concrete Grinding:

- A. No concrete containing ANY lead based paint may be crushed and reused on construction projects.
- B. For concrete that does not contain any lead based paint, obtain an Air permit for the concrete crusher from the State Department of Health Clean Air Branch and provide a copy of the permit to MCBH Environmental Air Compliance Program Manager via the ROICC prior to any crushing operations.

3. Lead Based Paint (LBP) analytical results: Provide a copy of the LBP analytical results to the MCBH environmental solid waste manager via the ROICC.

4. Asbestos Stripping and Removal: must be conducted in accordance to HAR-11-501.7.

- A. Provide asbestos test results to the MCBH environmental solid waste manager via the ROICC.
- B. If quantities of asbestos to be removed exceeds at least 260 linear feet on pipes or at least 160 square feet on other facility components an approved Notice of Intent to Demolish or Renovate (NOI) must be submitted to the State Department of Health at least ten days prior to beginning stripping or removal work.
- C. Submit a copy of the NOI to MCBH environmental solid waste compliance manager.
- D. Prepare a hazardous waste manifest for asbestos debris to be signed by MCBH Hazardous Waste Manager in bldg 6409 prior to transport.
- E. Provide copies of the manifest and disposal records from an approved asbestos disposal facility to the MCBH environmental solid waste manager.

5. Dust Control:

- A. Fugitive dust must be controlled eliminate the dust from leaving the construction site. Best management practices such a dust screens, water, and polymer applications are some methods to control the dust.
- B. Any questions regarding fugitive dust can be addressed to MCBH air quality manager.

6. **Chlordane Contaminated Soil:**

- A. For projects where the presence of chlordane is suspected (in particular housing projects). Provide test results of chlordane-contaminated soil to the MCBH environmental solid waste compliance manager via the ROICC for review.
- B. Testing should be conducted in accordance with the Department of Health letter Dated 22 Aug 2005 (Attachment 3-DOH to NAVFAC PAC). Testing is summarized as follows:
 - 1. Demo buildings and pads (do not scarify site)
 - 2. Break the housing project in to decision units. Decision units should make up a maximum of 10 former homes/buildings for each unit.
 - 3. Multi increment (MI) sample each decision unit at 0-6 inch soil depth. Sampling should be conducted at the former building pad areas and outside of the building pad areas within the decision unit.
 - 4. If chlordane is 1.6 mg/kg or less, no further action is required.
 - 5. If chlordane exceed 1.6 mg/kg, then identify former building pad areas within the decision unit, and perform MI sampling within the building pad area at 0-6 inch depth intervals, and remove any soil down to 18 inches or the highest concentration above the PRG of 1.6 mg/kg chlordane, etc. Verification sampling should demonstrate that the soil removal has reduced contamination to below risk based action levels of 1.6 mg/kg.
- C. Soil removed from contaminated decision units (testing above 1.6 mg/kg) may be used under roadways, parking lots or building on-site. Any contaminated soil capped on site should be clearly noted on detailed maps and included in the reisk management plan prepared for the community. Contaminated soil shall not be buried in areas that will be used for utility trenches.
- D. Stock piled chlordane soil must be covered with 6 mil plastic sheeting.
- E. Any deviance from the contract specifications regarding the use of chlordane-contaminated soil must be approved by the ROICC following review of the MCBH Environmental office and/or NAVFAC Pacific Environmental Office.

7. **Solid Waste Disposal**

- A. Contractor solid waste disposal at the MCBH Sanitary Landfill is not allowed.
- B. If the contractor has "clean" soil that may potentially be used for cover material at the MCBH Sanitary Landfill, the contractor should contact Base Facilities to determine if the landfill can use the material prior to disposing of the material off-site. Whenever possible, "clean" soil that may be used as landfill cover should be identified during the design phase of the project and noted as such in the construction specifications and plans. "Clean" soil is soil that is free of metals, chlordane or any other hazardous pollutant that is suspected for the project. **Approval for acceptance of "Clean" soil must come from Base Facilities and the ROICC prior to hauling of material to the landfill.**

Storm Water and De-watering

- 1. Controls must be in place, and Best Management Practices (BMP's) implemented to prevent contamination of storm water run-off from job site.
- 2. No water from de-watering can enter storm drains or waterways.
- 3. If the area disturbed is greater than 1 acre, a National Pollutant Discharge Elimination System (NPDES) permit authorizing discharges of storm water associated with construction activities must be obtained from the State of Hawaii Department of Health. This requirement also covers activities that disturb less than one acre of total land area that is part of a larger common plan of development or sale if the larger common plan will ultimately disturb one acre or more of total land area. "Disturbance of land" refers to the penetration, turning, or moving of soil or resurfacing of pavement of the exposure of bare soil or ground surface, including land surface exposed by construction roads, base yards, headquarters, and parking areas. It does not include grass or weed cutting, bush or tree trimming or felling that leaves soil or ground intact. It includes "grubbing" in its normal meaning of the use of equipment to knock down and push vegetation out of the way, typically uprooting vegetation and disturbing the ground surface.

GUIDELINES

1. Basic Water Quality Criteria and Inspections

- a) The construction project shall not cause a violation of the basic water quality criteria as specified in Hawaii Administrative Rules (HAR) 11-55 section 1 of appendix A.
- b) The contractor in charge shall routinely inspect the receiving state waters, effluent, control measures and BMPs to detect violations of, and conditions which may cause violations of the basic water quality criteria as specified in HAR 11-55 section 1 of appendix A.

2. Corrective Action

- a) The contractor in charge shall immediately stop, reduce, or modify construction, or implement new or revised BMPs as needed to stop or prevent a violation of the basic water quality criteria as specified in HAR 11-55 section 1 of appendix A.

3. Special Conditions for Land Disturbances (the following special conditions apply to all land disturbance work conducted at MCBH Kaneohe Bay)

a) Construction Management Techniques

- 1) Clearing and grubbing shall be held to the minimum necessary for grading and equipment operation.
- 2) Construction shall be sequenced to minimize the exposure time of the cleared surface area.
- 3) Construction shall be staged or phased for large projects. Areas of one phase shall be stabilized before another phase can be initiated. Stabilization shall be accomplished by temporarily or permanently protecting the disturbed soil surface from rainfall impacts and runoff.
- 4) Erosion and sediment control measures shall be in place and functional before earth moving operation begin. These measures shall be properly constructed and maintained throughout the construction period. Temporary measures may be removed at the beginning of the workday, but shall be replaced at the end of the workday.
- 5) All control measures shall be checked and repaired as necessary, for example, weekly in dry periods and within twenty-four hours after any rainfall of .5 inches or greater within a twenty-four hour period. During prolonged rainfall, daily checking is necessary.
- 6) A specific individual shall be designated to be responsible for erosion and sediment controls on each project site.

b) Vegetation Controls

- 1) Pre-construction vegetative ground cover shall not be destroyed, removed, or disturbed more than twenty calendar days prior to site disturbance.
- 2) Temporary soil stabilization with appropriate vegetation shall be applied on areas that will remain unfinished for more than thirty calendar days.
- 3) Permanent soil stabilization with perennial vegetation shall be applied as soon as practical after final grading.

c) Structural Controls

- 1) Using appropriate control measures, as practical shall divert storm water flowing toward the construction area.
- 2) Erosion control measures shall be designed according to the size of disturbed or drainage areas to detain runoff and trap sediment.

- 3) Water must be discharged so that the discharge does not cause erosion.
- d) Dewatering
- 1) Dewater may be discharged back into the ground in close proximity of the construction site as long as any portion of the dewater does not enter a storm drain, discharge to surface waters, or discharge to a pit where the depth is greater than its width. When the dewater has visible oil, the oil should be removed as much as practical before the dewater is discharge into the ground. Immediately report the finding of any subsurface oil to the MCBH Environmental Department.
 - 2) For further guidance on small scale dewatering activities, consult the MCBH Kaneohe Bay Standing Operating Procedures, or contact Jeff Larson of the MCBH Environmental Department, 257-6920 ext.234.

EPCRA (Emergency Planning and Community Right to Know Act)

1. Each contractor must maintain a list of all hazardous material that they bring aboard and use on MCBH every calendar (January through December) year. A suggested form is attached, the "Hazardous Chemical Storage and Usage Monthly Report".
2. The Hazardous Chemical Storage and Usage Report must be submitted to MCBH EPCRA Manager upon completion of contract or at the end of the calendar year, whichever comes first?

Hazardous Waste/Materials

1. All hazardous waste and materials must be marked and have proper secondary containment to prevent a spill into the environment;
2. Ensure that any accumulation of **more than (55) gallons of hazardous waste or (1) quart of acutely hazardous waste**, is removed from the site within 72 hours from the date of generation.
3. All hazardous waste must be handled, processed, and documented in accordance with 40 CFR 261-268. If contractor is solely responsible for waste disposal, follow 40 CFR and 49 CFR.
4. All hazardous waste must be manifested through the Base Hazardous Waste Accumulation Site (bldg 6409) and signed by the MCBH Hazardous Waste Program Manager.
5. Report any spill of hazardous materials or waste to the military police office (PMO).

Cultural Resources

Should bone material appear in any ground disturbing activities conducted by the contractor, work in the immediate vicinity (20 ft. diameter) of the find shall cease. The contractor is to call the ROICC and/or the government contracting representative immediately to notify he/she of the find. The ROICC and/or the government contracting representative will then notify the MCBH Cultural Resources Manager (CRM), at 257-6920 ext. 254 or ext. 243, who is responsible for identifying whether or not the bone material is human. Within 24 hrs. of the notification of the find, the CRM will make the requisite identification of the bone material. If the bone material is identified as human, the area of the find will be secured, work in the area will continue to be halted, and the MCBH CRM will follow procedures as outlined in the Native American Graves Protection and Repatriation Act (NAGPRA). If the bone material is non-human, the MCBH CRM will allow work to resume immediately.

See attachment (3) for GIS Requirements

Pesticide Application

For any project that may require the application of pesticides during construction (i.e. Family Housing or Bachelor Enlisted Quarters/Officer Quarter (BEQ/BOQ) projects) contractor should document and report the pesticides applied, date applied and quantity applied monthly to the Base Facilities Pest Shop Foreman and the Naval Facilities Engineering Command Pacific (NAVFAC PACIFIC) Environmental Planning Department (EV3), Natural Resources Branch.

For any project that requires pesticide application during construction, the "Marine Corps Base Hawaii Pest Management Plan", latest edition should be consulted. A copy of the plan is available from MCBH Environmental or NAVFAC PACIFIC EV3.

Contractors applying pesticides should be certified in accordance with all Federal and State regulations.

<u>POCs</u>	<u>Phone Number</u>
MCBH Solid Waste Compliance Manager	257-6920 x231
MCBH Water Quality Compliance Manager	257-6920 x234
MCBH Air Quality Compliance Manager	257-6920 x231
MCBH Hazardous Waste Compliance Program Manager	257-9913 x27
MCBH EPCRA Program Manager	257-6920 x241
MCBH Cultural Resource Manager	257-6920 x254
Military Police Office (PMO)	257-2123

CONTRACTOR'S WASTE MANAGEMENT PLAN

Contractor's Name: _____ Contract Number: _____ Activity: _____	Project Title: _____ Delivery Order: _____ Date of Project: _____	POC/Phone: _____ Project Location: _____
--	--	---

1. TOTAL PROJECT WASTE (If no salvage or recycling):

2. ALTERNATIVES TO LANDFILLING:

Type of Material	Quantity Tons)	Destination & Means of Transportation	Cost of Handling & Transportation	Expected Revenue	Net Cost	Cost if Landfilled	Comparison Cost (+) or Savings (-)

- 3. Total Net Cost (+) or Savings (-) from all alternatives to landfilling all project waste \$ _____
- 4. Recycling methods and means to protect material from contamination.
- 5. Means to ensure employees and subcontractors participate in waste management program:
- 6. Submit 2 copies of the Plan in accordance with Spec Section 01572 to MCBH Environmental Code: LE Solid Waste Compliance Manager

CONTRACTOR'S WASTE SUMMARY

Contractor's Name: _____
Contract Number: _____
Activity: _____

Project Title: _____
Delivery Order: _____
Date of Project: _____

POC/Phone: _____
Project Location: _____

Types of Wastes	Landfill		Incinerated		Recycled			Composted		
	Tons	Cost	Tons	Cost	Tons	Cost	Revenue	Tons	Cost	Revenue
Wood										
Metals										
Concrete										
Asphalt										
Asbestos										
Lead Based Paint Debris										
Construction & Demolition Debris <i>not covered in the above items</i>										
Green Waste										
Used Oil										
Antifreeze										
Lead Acid Batteries										
Food										
Glass										
Paper and Cardboard										
Plastic										
General Refuse										
Other										

Submit two copies to the MCBH Kaneohe Bay Environmental Department, Code LE, Solid Waste Compliance Manager via the Contracting Officer within 15 calendar days upon completion of the project, or within 15 calendar days after the end of the fiscal year for projects not completed by the end of the fiscal year. Contractor Waste Summary shall be submitted as a requirement before final payment can be made for the project.

5.1 Overview

Many of the philosophies embodied within this document, from ecosystem-based management to creating an appropriate environmental and cultural sense of place, relate to the use of native plant material. When the previous Master Landscape Study was developed in 1984, the commercial industry and general awareness of native plant species was in its infancy. Today, more and more mandates to use native plant species in new landscape developments, renovations and reforestations are appearing through federal, state, city and county governments. The public awareness of the use and beauty of native plants continues to grow every year.

Many public agencies, commercial growers and private individuals are beginning to realize that native Hawaiian plants are not only botanically rich and beautiful, but also beneficial to the environment. The Master Plant List that follows in this section reflects these new philosophies of plant material use, especially in environmentally sensitive areas, like the Mōkapu peninsula.

5.2 Native versus Introduced Plant Species

Native Hawaiian plants are defined as those plants that arrived in Hawai‘i on their own, without the aid of man. These plants could have had seeds travel to the island chain over water or through air, or hitchhiked in or on a travelling bird. There are two types of native plants, those that are endemic and those that are indigenous.

Endemic plants are those that arrived here and evolved into a plant unique to Hawai‘i. Indigenous plants are found naturally in Hawai‘i, but they are also found in other parts of the world as well. Both types are native and deserve special consideration for use within the designed landscape.

Introduced plants were brought to Hawai‘i by people, either on purpose or by accident. Some introduced plants are considered Polynesian introduced and tend to be related to cultural uses. These plants were brought to Hawai‘i by the first Polynesians. Most introduced plants arrived in Hawai‘i during modern times and for purely ornamental or agricultural uses. These plants drastically altered the native landscape and environment, as the Hawaiian environment provided an excellent setting for these nonnative plants to spread beyond their intended uses and infiltrate

the natural landscapes.

While there are many wonderful plants that are nonnative and many of those are thought of as inseparable from the Hawai‘i experience, these plants can actually present a threat to the native species. Some are invasive and naturally choke out native vegetation, but other simply are familiar and tend to inhibit awareness of the lesser know native plants.

In some locations on the peninsula, especially where the site orientation is directly affected by the tradewinds or in some special location that requires a more ornamental approach, it may be necessary to look toward nonnative species for assistance. Whenever possible, appropriate and practical, native species will be considered for use before nonnative species.

Over the years, some debate has occurred regarding the native or introduced status of specific plants found in Hawai‘i. Although many resource lists in the past have listed Milo (*Thespesia populnea*), Hau (*Hibiscus tileaceous*) and Kou (*Cordia subcordata*) as Polynesian introductions, recent research now appears to indicate that these plants arrived by their own means and deserve native plant status.

Many native plants, especially those native to coastal and dry forest areas, will help reduce wasteful watering practices. Also, plants such as naio, a‘ali‘i, pohinahina, ‘ilima, naupaka, manele and lonomea have broad range elevation tolerance. Thus given full sun and good drainage, they can be grown in coastal, inland and upland Hawaiian landscapes.

Not long ago, it was not easy to locate large supplies of native plants, especially if the search included many varieties. However, as each year passes, more and more of the commercial growers are realizing the relatively untapped economic market in native plants. The list found in this section contain the names of nurseries that currently offer native plants. This is a growing market and the list is expected to evolve as time passes and the use of native plant material continues to grow in popularity.

Most of all, the use of native plants creates a more stable and sustainable landscape environment. The use of native plants creates a system that is less depleting of limited resources (e.g., irrigation water and maintenance time). The use of endemic, indigenous and Polynesian introduced plant material will help the Base landscape reflect a sense of place, environmentally and culturally.

Table D2-1: PLANTS PROHIBITED FOR PLANTING ABOARD ALL MCBH PROPERTIES

The following plants are prohibited aboard MCBH installations (i.e., MCBH-Kaneohe Bay, MCTAB, Camp H.M. Smith, Manana Housing, Puuloa Training Facility, Waikane Valley Impact Area, Molokai Training Facility) for any plantings. **Prior to purchase and/or planting, any plants considered for landscaping not identified on this list must be reviewed and approved on a case-by case-basis by the MCBH Environmental Department for suitability of use or introduction to MCBH properties and by the Facilities Department for maintenance concerns.**

- No grasses other than native or turf building grasses for lawns and golf courses are allowed.
- All non-native vines are strictly prohibited.

Scientific Name	Common Name	Remarks
TREES		
<i>Bucida buceras</i>	Geometry Tree	3
<i>Casuarina equisetifolia</i>	Ironwood	1,6,8,9
<i>Clusia rosea</i>	Autograph Tree	6, May only be used in very high wind environments.
<i>Coccoloba uvifera</i>	Seagrape	4,6
<i>Conocarpus erectus</i>	Silver Buttonwood	1,4,5,6
<i>Enterolobium cyclocarpum</i>	Earpod	2
<i>Eucalyptus spp.</i>	Eucalyptus	1,6
<i>Ficus benghalensis</i>	Indian Banyan	1,2,4,5,6,7
<i>Ficus elasticus</i>	False Rubber Tree	2,4,5,7
<i>Ficus lyrata</i>	Fiddleleaf Fig	2,4,5,6,7
<i>Ficus microcarpa</i>	Chinese Banyan	1,2,4,6,7
<i>Grevillea robusta</i>	Silk Oak	1,4,5,6
<i>Melaleuca quinquenervia</i>	Paperbark	1,4,5,6
<i>Pimenta dioica</i>	Allspice	1,6
<i>Pithecellobium dulce</i>	Opiuma	3,5,6
<i>Polyscias guilfoylei</i>	Panax	Highly attractive to termites.
<i>Prosopis pallida</i>	Kiawe	3,5,6
<i>Psidium cattleianum</i>	Strawberry Guava	4,5,6,9
<i>Psidium guajava</i>	Common Guava	4,5,6,9
<i>Rhizophora mangle</i>	Mangrove	1,2,4,5,6,8
<i>Schefflera actinophylla</i>	Octopus Tree	1,2,4,5,6,7
<i>Schinus terebinthifolia</i>	Christmas Berry / Brazilian Pepper Tree	1,3,4,5,6
<i>Spathodea campanulata</i>	African Tulip Tree	2,4,5,6
<i>Terminalia catappa</i>	False Kamani	6
PALMS & CYCADS		
<i>Cocos nucifera</i>	Coconut Palm	4
SHRUBS		
<i>Carissa macrocarpa</i>	Natal Plum	3,4
<i>Hedychium coronarium</i>	White Ginger	4,5,6,9
<i>Hedychium flavescens</i>	Yellow Ginger	4,5,6,9

Table D2-1: PLANTS PROHIBITED FOR PLANTING ABOARD ALL MCBH PROPERTIES

Scientific Name	Common Name	Remarks
<i>Hedychium gardnerianum</i>	Kahili Ginger	4,5,6,9
<i>Hylocereus undatus</i>	Nightblooming Cereus	4,5,6
<i>Lantana camara</i>	Lantana	3,4,5,6
<i>Ricinus communis</i>	Castor Bean	1,3,5,6
GROUND-COVERS		
<i>Asystasia gangetica</i>	Chinese Violet	5,6
<i>Carpobrotus edulis</i>	Iceplant	5,6
<i>Convolvulus mauritanicus</i>	Ground Morning Glory	6
<i>Stapelia gigantea</i>	Carrion Flower	5,6
OTHER		
<i>Cortaderia jubata</i> and <i>selloana</i>	Pampas Grass	1,4,5,6
<i>Pennisetum setaceum</i>	Fountain Grass	1,4,5,6 – Fire Hazard
<i>Arundinaria sp., Bambusa sp., Chimonobambusa sp., Chusquea sp., Otatea sp., Phyllostachys sp., Pseudosasa sp., Sasa sp., Semiarundinaria sp., Shibataea sp., Sinarundinaria sp., Thamnocalamus sp.</i>	All bamboo species	4,5,6,9
Do not plant around housing and children playgrounds:		
<i>Bougainvillea spp.</i>	Bougainvillea	3,4,6
<i>Calotropis gigantea</i>	Crown Flower	Toxic
<i>Datura stramonium</i>	Jimson Weed	Highly Toxic
<i>Euphorbia pulcherrima</i>	Poinsettia	Poisonous or will cause skin irritation or burns
<i>Euphorbia tirucalli</i>	Pencil Plant	Poisonous or will cause skin irritation or burns
<i>Jatropha multifida</i>	Coral Plant	Poisonous or will cause skin irritation or burns
<i>Nerium oleander</i>	Oleander	Poisonous or will cause skin irritation or burns
<i>Thevetia peruviana</i>	Be-still Tree	Poisonous or will cause skin irritation or burns
<i>Brugmansia candida</i>	Angel's Trumpet	Poisonous or will cause skin irritation or burns

Note: The above plant list is an update of previous lists published in the MCBH INRMP (2001) and the MCBH Master Landscape Study (2002). It builds upon the recommendations and analyses in those documents as well as experience and expertise of our natural resources staff, and new information received since 2002. Any plants on this list are strictly prohibited from any plantings on MCBH properties. Consult companion Table D2-2 for an Approved List of preferred indigenous and/or Polynesian introduced plants for recommended use in MCBH planting schemes on various MCBH properties specified therein.

Remarks

- | | |
|--|--|
| <ol style="list-style-type: none"> 1. Prolific seeder 2. Destructive / aggressive root system 3. Thorns, caustic sap, causes skin irritation, poisonous 4. Difficult to control / high maintenance, economically expensive to control/maintain 5. Little or no means of natural control | <ol style="list-style-type: none"> 6. Out competes natives and other species – fast growth, rapid reproduction, high dispersal ability 7. Harmful epiphytic (grows on other plants) behavior 8. Allelopathy (negatively influences the growth and development of neighboring plants) 9. Causes erosion |
|--|--|

Table D2-1: PLANTS PROHIBITED FOR PLANTING ABOARD ALL MCBH PROPERTIES

Conditions that Lead to Invasion¹

Traits of invasive species

Many features have been attributed to invasive species and invaded ecosystems, but none are universal and invasive species tend to have a suite of traits rather than all of them. Common invasive species traits include fast growth, rapid reproduction, high dispersal ability, phenotypic plasticity (the ability to alter one's growth form to suit current conditions), tolerance of a wide range of environmental conditions, ability to live off of a wide range of food types, single parent reproduction (especially in plants), and, commonly, association with humans. The single best predictor of invasiveness, however, is whether or not the species has been invasive somewhere else.

Species-based mechanisms

Species-based characteristics focus on plant competition. While all plants are able to compete in some manner in order to survive and persist, invasive species appear to have specific traits or combinations of specific traits that make them especially good competitors. In some cases it can be as simple as having the ability to grow and reproduce more rapidly than native species. Other situations are more complex, such as allelopathy, which is a common mechanism whereby the invader directly or indirectly prevents other plants from growing nearby.

Life history

Several traits have been singled out by researchers as predictors of invasive ability in plants. For example, the ability to reproduce both asexually (vegetatively) as well as sexually, rapid growth, early sexual maturity, high reproductive output, the ability to disperse young widely, tolerance of a broad range of environmental conditions, and high phenotypic plasticity are all abilities that might aid an invasive plant in establishing and proliferating in a new environment. In addition, plants that are associated with human habitats, such as crop plants (and their weeds), plants valued for ornamental purposes, or plants that are spread along roadways or by domestic animals, are more likely to find a vector to travel to a new habitat in the first place.

Superior competition

A common trait of invasive species is great competitive ability, which can be stronger against plants in a new habitat than plants in their native habitat. There can be huge differences between how an invasive species interacts with its native ecosystem, and with the ecosystem it is invading. Often, the invading species has a better chance at acquiring resources, which can be light, water, space, or nutrients.

Facilitation

Facilitation is the mechanism by which some species can alter their environment through chemicals or manipulation of abiotic factors, usually to make it more favorable to their growth or reproduction. Sometimes, neighboring species may benefit by another's facilitation, but often the facilitation actually benefits the target species to the detriment of its neighbors.

¹ This information excerpted from "Invasive Species", available at http://en.wikipedia.org/wiki/Invasive_species.

Table D2-2: APPROVED PLANTS FOR NATIVE AND POLYNESIAN INTRODUCED PLANTINGS ABOARD ALL MCBH PROPERTIES

The following plants are allowed aboard specific MCBH installations (i.e., MCBH-Kaneohe Bay, MCTAB, Camp H.M. Smith, Manana Housing, Puuloa Training Facility, Waikane Valley Impact Area, Molokai Training Facility – see table for details) for plantings. **Prior to purchase and/or planting, any plants considered for landscaping not identified on this list must be reviewed and approved on a case-by case-basis by the MCBH Environmental Department for suitability of use or introduction to MCBH properties and by the Facilities Department for maintenance concerns.**

Scientific Name	Common Name	Hawaiian Name	Endemic (e), Indigenous (ind.), or Polynesian (p).	Recommended Planting Location: K=MCBH Kaneohe Bay; CS=Camp Smith; M=Manana; P=Puuloa
TREES				
<i>Acacia koa</i>	Koa	Koa	e	CS
<i>Acacia koaia</i>		Koa'ia	e	CS
<i>Aleurites moluccana</i>	Kukui Tree	Kukui	p	CS
<i>Artocarpus altilis</i>	Breadfruit	Ulu	p	CS/M/K
<i>Broussonetia papyrifera</i>	Paper Mulberry	Wauke	p	CS/M
<i>Calophyllum inophyllum</i>	True Kamani		p	K/CS/M/P
<i>Cordia subcordata</i>	Kou		p	K/CS/M/P
<i>Diospyros sanwicensis</i>	Hawaiian Ebony	Lama	e	K/M
<i>Erythrina sandwicensis</i>	Hawaiian Coral Tree	Wiliwili	e	K/M/P
<i>Hibiscus tiliaceus</i>		Hau	ind.	CS
<i>Metrosideros polymorpha</i>		Ohi'a Lehua	e	K/CS/M/P
<i>Munroidendron racemosum</i>			e	CS/M
<i>Pandanus tectorius</i>	Screw Pine	Hala	ind.	K/CS/M/P
<i>Pisonia sp.</i>		Papala	ind/e	CS
<i>Rauvolfia sandwicensis</i>		Hao	e	K/P/M
<i>Santalum freycinetianum</i>	Sandlewood	'Iliahi	e	CS
<i>Sapindus oahuensis</i>	Oahu Soapberry	Lonomea	e	K/CS/M
<i>Sapindus saponaria</i>	Hawaiian Soapberry	Manele	ind.	CS
<i>Thespesia populnea</i>	Portia Tree	Milo	ind.	K/CS/M/P
<i>Tournefortia argentea</i>	Beach Heliotrope		p	K/P
PALMS & CYCADS				
<i>Pritchardia affinis</i>	Big Island Loulu	Loulu	e	K/CS/M/P
<i>Pritchardia beccariana</i>		Loulu	e	K/CS/M/P
<i>Pritchardia hillebrandii</i>	Moloka'i Loulu	Loulu lelo	e	K/CS/M/P
<i>Pritchardia remota</i>	Nihoa Loulu	Loulu	e	K/CS/M/P
<i>Pritchardia martii</i>	O'ahu Loulu	Loulu	e	K/CS/M

Table D2-2: APPROVED PLANTS FOR NATIVE AND POLYNESIAN INTRODUCED PLANTINGS ABOARD ALL MCBH PROPERTIES

Scientific Name	Common Name	Hawaiian Name	Endemic (e), Indigenous (ind.), or Polynesian (p).	Recommended Planting Location: K=MCBH Kaneohe Bay; CS=Camp Smith; M=Manana; P=Puuloa
SHRUBS				
<i>Abutilon menziesii</i>	Red 'Ilima	Ko'oloa'ula	e	CS/M
<i>Alocasia macrorrhizos</i>	'Ape		p	K/CS/M/P
<i>Argemone glauca</i>	Hawaiian Poppy	Pua kala e	e	K/M/P
<i>Bidens spp.</i>		Ko'oko'olau	e	K
<i>Capparis sandwichiana</i>		Maiopilo	e	K/M/P
<i>Chamaesyce sp.</i>		Akoko	e	CS/M
<i>Chenopodium oahuense</i>		'Aweoweo	e	K/M/P
<i>Colocasia esculenta</i>	Taro	Kalo	p	K/CS/M/P
<i>Cordyline fruticosa</i>	Ti	Ti	p	K/CS/M/P
<i>Dodonaea viscosa</i>		A'ali'i	ind.	K/CS/M/P
<i>Gardenia brighamii</i>		Nanu	e	K/M/P
<i>Gossypium tomentosum</i>	Hawaiian Cotton	Ma'o	e	K/M/P
<i>Hibiscus amottianus</i>	Native White Hibiscus	Koki'o ke'oke'o	e	K/CS/M/P
<i>Hibiscus brackenridgei</i>	Native Yellow Hibiscus	Ma'o Hau Hele	e	K/CS/M/P
<i>Hibiscus clayi</i>	Clay Hibiscus	Koki'o 'ula	e	K/CS/M/P
<i>Hibiscus kokio subsp. Saintjohnianus</i>	Native Red Hibiscus	Koki'o 'ula 'ula	e	K/CS/M
<i>Hibiscus waimeae</i>	White Kauai Hibiscus	Koki'o ke'oke'o	e	CS/M
<i>Morinda citrifolia</i>	Noni		p	K/CS/M/P
<i>Myoporum sandwicense</i>	Bastard Sandalwood	Naio	ind.	K/CS/M/P
<i>Nototrichium sandwicense</i>		Kulu'i	e	K/CS/M/P
<i>Pipturus albidus</i>		Mamaki	e	CS
<i>Pittosporum sp.</i>		Ho'awa	e	K/CS/M
<i>Psydrax odoratum</i>		Alahe'e	ind.	K/CS/M/P
<i>Scaevola sericea</i>	Beach Naupaka	Naupaka kahakai	ind.	K/CS/M/P
<i>Scaevola gaudichaudii</i>	Mountain Naupaka	Naupaka kauahiwi	e	CS
<i>Sesbania tomentosa</i>		'Ohai	e	K/M/P

Table D2-2: APPROVED PLANTS FOR NATIVE AND POLYNESIAN INTRODUCED PLANTINGS ABOARD ALL MCBH PROPERTIES

Scientific Name	Common Name	Hawaiian Name	Endemic (e), Indigenous (ind.), or Polynesian (p).	Recommended Planting Location: K=MCBH Kaneohe Bay; CS=Camp Smith; M=Manana; P=Puuloa
GROUND-COVERS				
<i>Asplenium nidus</i>		'Ekaha	ind.	CS
<i>Dianella sandwicensis</i>		Ukiuki	ind.	CS
<i>Heliotropium anomalum</i>		Hinahina	ind.	K/P
<i>Heliotropium curassavicum</i>	Seaside Heliotrope	Kipukai	ind.	K/P
<i>Ipomoea pes-caprae</i>	Beach Morning Glory	Pohuehue	ind.	K/M/P
<i>Jacquemontia ovalifolia</i> subsp. <i>sandwicensis</i>		Pa'u-o-Hi'iaka	e	K/CS/M/P
<i>Lipochaeta integrifolia</i>		Nehe	e	K/M/P
<i>Microlepia strigosa</i>		Palapalai	e	K/CS
<i>Nephrolepis cordifolia</i>	Narrow Sword Fern	Kupukupu	ind.	K/M
<i>Osteomeles anthyllidifolia</i>		Ulei	ind.	K/CS/P
<i>Peperomia</i> spp.		'Ala'ala wai nui	e	CS
<i>Phymatosorus grossus</i>		Laua'e	p	K/CS/M/P
<i>Plumbago zeylanica</i>	Plumbago	Ilie'e	ind.	CS
<i>Portulaca molokiniensis</i>		'Ihi	e	K/M/P
<i>Sesuvium portulacastrum</i>		Akulikuli	ind.	K/CS/P/M
<i>Sida fallax</i>		'Ilima papa	ind.	K/CS/P/M
<i>Sporobolus virginicus</i>		Akiaki	ind.	K/P/M
<i>Vitex rotundifolia</i>	Beach Vitex	Pohinahina	ind.	K/CS/P/M
<i>Wikstroemia uva-ursi</i>		'Akia	e	K/CS/P/M

Note: The above plant list is an update of previous lists published in the MCBH INRMP (2001) and the MCBH Master Landscape Study (2002). It builds upon the recommendations and analyses in those documents, as well as the experience and expertise of our natural resources staff, and new information received since 2002. The reader following this list should always contact the MCBH Environmental Department for the latest information prior to making any final decisions. Consult companion Table D2-1 for a Prohibited Plant List of plants prohibited for planting at all MCBH properties.

Table D2-3: APPROVED NON-NATIVE PLANTS FOR PLANTINGS ABOARD ALL MCBH PROPERTIES

The following plants are allowed aboard specific MCBH installations (i.e., MCBH-Kaneohe Bay, MCTAB, Camp H.M. Smith, Manana Housing, Puuloa Training Facility, Waikane Valley Impact Area, Molokai Training Facility – see table for details) for plantings. **Prior to purchase and/or planting, any plants considered for landscaping not identified on this list must be reviewed and approved on a case-by case-basis by the MCBH Environmental Department for suitability of use or introduction to MCBH properties and by the Facilities Department for maintenance concerns.**

Scientific Name	Common Name	Recommended Planting Location: K=MCBH Kaneohe Bay; CS=Camp Smith; M=Manana; P=Puuloa	Remarks
TREES			
<i>Cassia fistula</i>	Golden Shower	K/CS/M/P	
<i>Cassia x nealiae</i>	Rainbow Shower	K/CS/M/P	
<i>Erythrina variegata</i>	Vertical Wiliwili	K/P	Prohibited until the Erythrina Gall Wasp (<i>Quadrastichus erythrinae</i>), a recent alien invader that is attacking Wiliwili throughout the state, is under control. The state is working on possible controls as of 2006.
<i>Plumeria obtusa</i>	Singapore Plumeria	K/CS/M/P	
<i>Plumeria rubra</i>	Plumeria	K/CS/M/P	
<i>Samanea saman</i>	Monkeypod	K/CS/M/P	
<i>Senna surattensis</i>	Kolomana	K/CS/M/P	
<i>Tabebuia aurea</i>	Silver Trumpet Tree	K/CS/M/P	
<i>Tabebuia donnell-smithii</i>	Gold Tree	CS/M	
PALMS & CYCADS			
<i>Archontophoenix cunninghamiana</i>	King Palm	CS/M	
<i>Chrysalidocarpus lutescens</i>	Areca Palm	K/CS/M/P	
<i>Hibiscus spp.</i>	Hibiscus (var)		
<i>Hyophorbe lagenicaulis</i>	Bottle Palm	K/CS/M/P	
<i>Latania loddigesii</i>	Blue Latan Palm	K/CS/M/P	
<i>Livistona chinensis</i>	Chinese Fan Palm	CS/M	
<i>Phoenix roebelenii</i>	Dwarf Date Palm	K/CS/M/P	
<i>Ptychosperma macarthurii</i>	Macarthur Palm	CS/M	
<i>Roystonea regia</i>	Royal Palm	CS/M	
<i>Syagrus romanzoffiana</i>	Queen Palm	K/CS/M/P	
<i>Veitchia joannis</i>	Joannis Palm	K/CS/M/P	
<i>Veitchia merrillii</i>	Manila Palm	K/CS/M/P	
<i>Wodyetia bifurcata</i>	Foxtail Palm	K/CS/M/P	
SHRUBS			
<i>Crinum asiaticum</i>	Spider Lily	K/CS/M/P	
<i>Hibiscus spp.</i>	Hibiscus (var)		
<i>Hibiscus rockii</i>	Rock's Kaua'i Hibiscus	K/CS/M/P	
<i>Ligustrum ovalifolium</i>	California Privet	K/CS/M/P	
<i>Murraya paniculata</i>	Mock Orange	K/CS/M/P	
<i>Strelitzia reginae</i>	Bird of Paradise	CS/M	
GROUND-COVERS			
<i>Arachis pintoi</i>	Golden Glory	K/CS/M/P	
<i>Tradescantia spathacea</i>	Oyster Plant	K/CS/M/P	

Note: The above plant list is an update of previous lists published in the MCBH INRMP (2001) and the MCBH Master Landscape Study (2002). It builds upon the recommendations and analyses in those preceding documents, as well as the experience and expertise of our natural resources staff, and new information received since 2002. The reader following this list should always contact the MCBH Environmental Department for the latest information prior to making any final decisions.

MCBH Kaneohe Bay Painting Guidance

In accordance with Federal Standard Color 595B, July 1994

Exterior paint and paint colors to be:

Metal Surfaces

Body Color - 13578

Trim Color - 10219

Wainscot to be 3' high, industrial enamel, high-gloss paint, to match Trim Color.

All Other Surfaces

Body Color - 23578

Trim Color - 20219

Wainscot to be 3' high, color - 20219, latex semi gloss paint

Door and jambs, rain gutters, hand rails to be painted trim colors.

Roof, eaves, and downspouts to match body color.

Interior paint and paint colors to be:

Metal Surfaces

Industrial enamel, high-gloss paint

Match color to existing

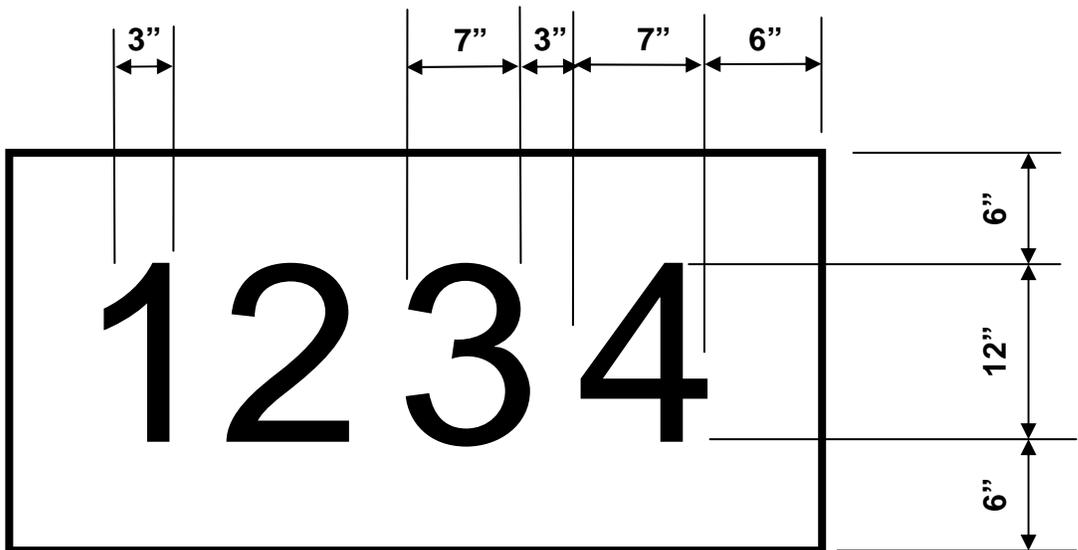
All Other Surfaces

Wall Color - Navajo White* latex semi-gloss paint

Trim Color - Grass Glenn* latex semi-gloss paint

Ceiling Color - Flat White*

*Fuller O'Brien colors



OPTIONS:

1. PAINT DIRECTLY ON BLDG SURFACE WITH ENAMEL PAINT, BLACK LETTERS WITH WHITE, REFLECTIVE BACKGROUND.
2. .063" ALUMINUM PLATE WITH WHITE REFLECTIVE BACKGROUND AND BLACK ENAMEL, SCREEN-PRINTED NUMBERS.
3. DIRECT APPLIED RAISED NUMBERS IN A MATERIAL RESISTANT TO WEATHER.

NOTE: BUILDING NUMBERS ARE TO BE POSTED AT CORNERS OF THE BUILDING THAT FACE ALL POINTS OF THE COMPASS. BUILDING NUMBERS SHALL APPEAR MAXIMUM 200 FEET APART.

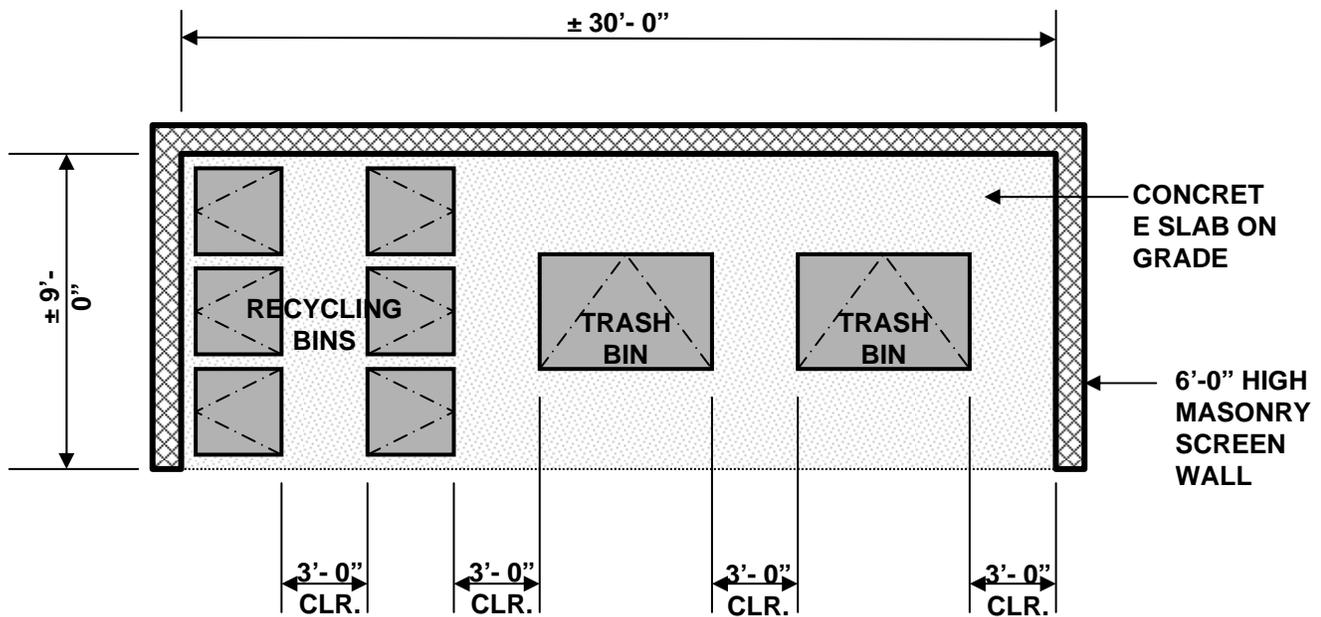
FONT SHALL BE HELVETICA OR ARIAL. ALL OTHER FONTS SHALL BE REVIEWED & APPROVED BY MCBH FACILITIES



MARINE CORPS BASE HAWAII
 FACILITIES DEPARTMENT
 Engineering Branch (LFPE)
 P.O. Box 63086
 Kaneohe, HI 96863-3082

**BUILDING IDENTIFICATION
 NUMBER SIGN DETAIL**

NOT TO SCALE



MARINE CORPS BASE HAWAII
 FACILITIES DEPARTMENT
 Engineering Branch (LFPE)
 P.O. Box 63086
 Kaneohe, HI 96863-3082

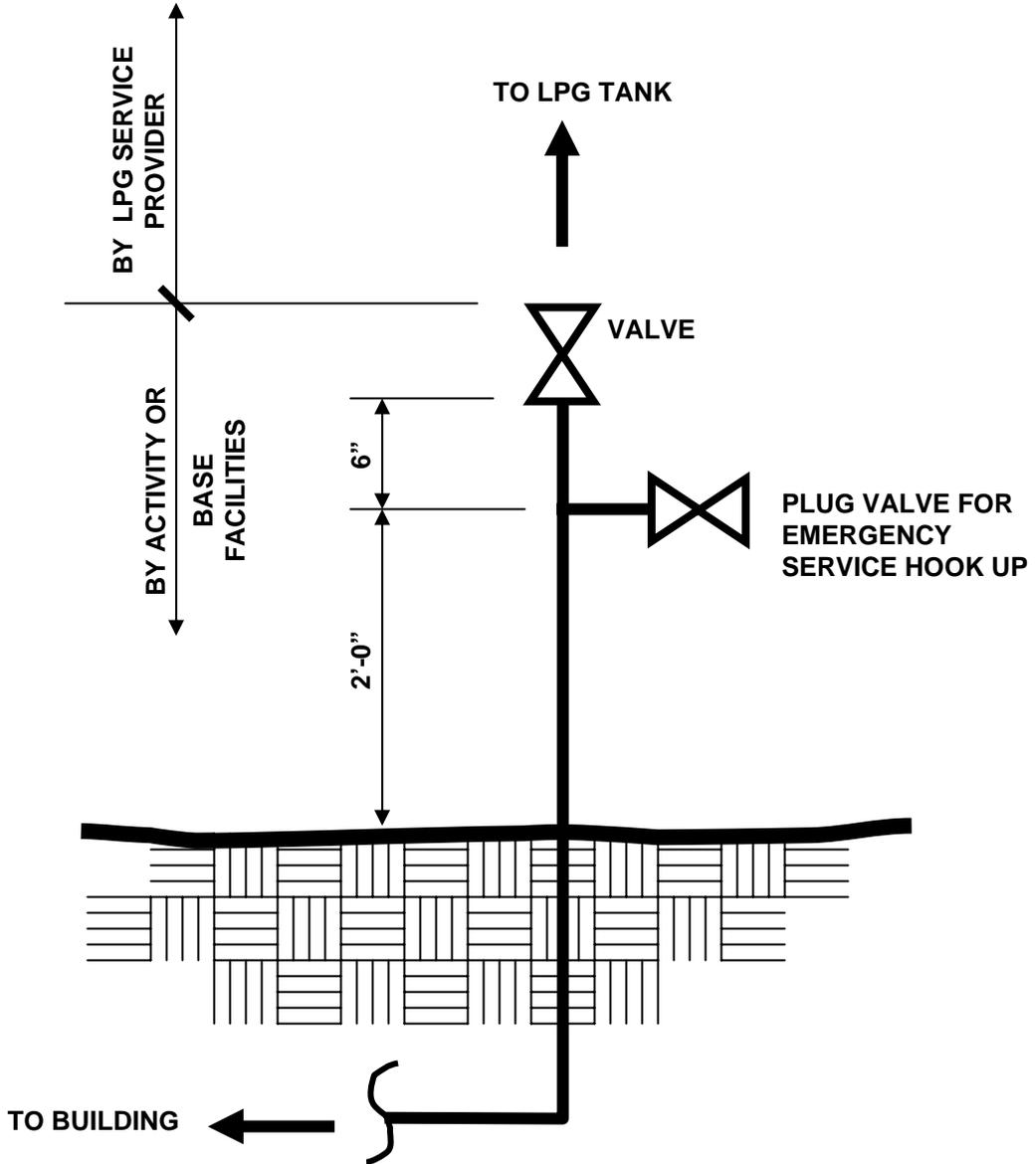
MCBH TRASH ENCLOSURE STANDARD for BARRACKS

NO SCALE

APRIL 2007

APPENDIX 12

MCBH LPG CONTRACTOR SHALL PROVIDE THE FIRST STAGE REGULATOR AND FINAL CONNECTION FROM THE SHUTOFF VALVE TO LPG TANK



MARINE CORPS BASE HAWAII
FACILITIES DEPARTMENT
Engineering Branch (LFPE)
P.O. Box 63086
Kaneohe, HI 96863-3082

LIQUID PROPANE GAS LINE INSTALLATION

NO SCALE

27 OCT 2006

APPENDIX 13

ELECTRICAL STANDARD

FOR
MARINE CORPS BASE HAWAII
FACILITIES DESIGN & CONSTRUCTION STANDARD

OCTOBER 2005

ELECTRICAL STANDARD

GENERAL

Designers shall verify that all applicable portions of these standards are incorporated into the project's design, drawings, specifications and final construction. Requests for variances from these standards shall be submitted in writing to the MCBH Facilities Manager using the MCBH Standards Variance Request Form for review and written approval or rejection as indicated on the form.

RELATED DOCUMENTS & REQUIREMENTS

Refer to the following for requirements that also apply to work of this section.

- **Division 23** – Mechanical: Review all sections of Division 23 for related work and systems that must be coordinated with provisions of Division 26.
 - **Appendix A15**, SOP – Commissioning: For projects involving a commissioning agent as part of the project team, the Designer shall coordinate with the commissioning agent for function test procedures for equipment and systems of Division 26.
- **Division 26** – Electrical Standards of Practice: MCBH / MCD has adopted specific electrical system construction practices that are referenced by the applicable MCBH Facilities, (MCD) Maintenance Control Division's Standards of Practice (SOP). The Designer shall use the following supplemental guidelines and standards of practice in development of project construction documents, in addition to these Division 26 Standards.
 - **Appendix A16.1**, SOP – Electrical Installation Methods
 - **Appendix A16.2**, SOP – Electrical Materials
 - **Appendix A16.3**, SOP – Electrical Power Metering
 - **Appendix A16.4**, SOP – Electrical Distribution System
 - **Appendix A16.5**, SOP – Lighting Methods and Materials

METERING REQUIREMENTS

Electrical metering or projects that require new services to be fed from the MCBH distribution system shall be in accordance with requirements of **Appendix A16.3**, Standard of Practice – Electrical Power Metering.

UTILITY SERVICE PROVIDER

Projects that require new services to be fed from the base's distribution system shall be in accordance with requirements of **Appendix A16.4**, Standard of Practice – Electrical Distribution System.

For Projects that require the establishment of new electrical services, the Designer shall determine, by discussions with MCBH Electrical Engineer / LFPE, the impact of this service to the existing electrical infrastructure.

BASIC ELECTRICAL METHODS AND MATERIALS

Basic Minimum Raceway Requirements: In order to facilitate long-term cable management, wiring systems (including but not limited to DDC, fire alarm, telecommunications, security, and power) shall be installed in approved raceways, per **Appendix A16.2**, SOP – Electrical Materials

Concealing New Circuits: Electrical work in architecturally finished spaces shall be concealed. The Designer shall obtain MCBH / MCD approval for design of new circuits that must be installed in surface raceways systems where concealment is not possible.

Firestopping: Identify and provide installation details for utilization of firestopping materials associated with the particular construction materials that will be encountered. Include details of firestop systems in plans and list specific UL or other approved test assembly numbers. Use removable pillows for cable tray penetration firestop.

Cathodic Protection: Cathodic protection is required for certain underground piping systems. The need for a cathodic protection system shall be specified and designed according to the Cathodic Engineering Specialist's recommendation per project need.

The decision to install a sacrificial or impressed current method shall be per this recommendation and MCBH entities having jurisdiction.

Electrical Test Data: Specify the operational tests and test methods required for the following equipment and materials:

- Primary cable and equipment
- Engine-generators and emergency power system
- Auditorium sound systems
- Audio/Video systems
- Fire alarm systems
- Lightning protective systems
- Transformers
- Ground fault protective systems
- Secondary service conductors/bus duct

- ❑ Voice/data systems
- ❑ Electrical grounding systems
- ❑ Cathodic Protection
- ❑ DDC or SCADA systems

Grounding and Bonding: A reminder that the National Electrical Code is the minimum standards for electrical applications. Project design and specifications may require additional material, labor and time. Other DOD entities or contractors are listed below as they pertain to Grounding and Bonding:

- ❑ SPAWAR
- ❑ EOD
- ❑ BASE SAFETY OFFICE
- ❑ MAINTENANCE CONTROL DIVISION

ELECTRICAL SUPPORTING AND MOUNTING

Prohibited Support: Except for wooden structures, the use of lumber or plywood as a supporting or mounting means for electrical equipment is prohibited. Exceptions for temporary use shall not exceed 90 days.

ELECTRICAL IDENTIFICATION

Identification: The Designer shall identify specific requirements for labeling and identifying electrical equipment and devices. All switching, protective devices, and metering on main distribution switchboards shall be identified with black-white-black laminated 1/8-inch thick plastic plates. Plastic plates shall be attached to the equipment with, double back adhesive tape, screws or rivets.

- ❑ Identification plates are required for all electrical distribution equipment from the service through branch circuit panelboards and motor control centers. Labels shall identify both the equipment designation and the source supplying the equipment.
- ❑ The Designer shall specify both numbering and wording of identification plates.
- ❑ Motor and associated equipment numbers shall be the same.
- ❑ Raceways shall be identified where appropriate or directed per project design, i.e., red for fire alarm, blue for low voltage cables such as telephone, fiber optic, coaxial and CAT 5/6, etc.

CONDUCTORS AND CABLES

Prohibited Wires and Cables: Aluminum wire and UF cable are prohibited in permanent installations, but allowable for temporary use.

Prohibited Underground Conductors: To facilitate future replacement of conductors and increase conductor life, direct-buried conductor systems for underground wiring shall not be used.

- ❑ All underground wiring shall be in appropriately approved conduit and shall be rated for wet location and flame-retardant with moisture resistant thermo-set insulation, per National Electrical Code.
- ❑ Above ground wiring shall be THHN-THWN type; dry, damp and wet location rated.
- ❑ Color-coding as follows: 208/120-Black, Red, Blue, White, and Green.
408/227-Brown, Orange, Yellow, Grey/White, and Green
- ❑ MC & AC type cable are only allowed for fixture whips or equipment in lengths not longer than 6ft. and must carry a grounding conductor.

UNDERCARPET CABLES Prohibited.

MEDIUM VOLTAGE CABLES

Voltage Classifications: The Designer shall use this specification section to specify electrical cables carrying power at phase-to-phase or phase-to-ground voltages of between 2001-volts and 35,000-volts. For projects on MCBH, this would include any cables installed in the 11,500-volt circuits between the substations and a building service entrance transformer.

- ❑ Refer to [Appendix A16.4](#), SOP – Electrical Distribution System for additional discussion.

Appropriate Cable Assemblies: In general, medium voltage power cables will be installed on Marine Corps Base Hawaii, in underground conduit systems. No direct burial installations will be allowed.

- ❑ Cable installed in underground conduits shall be specified as shielded single conductor as specified by MCBH SOP.
- ❑ The Designer shall evaluate the project-specific installation requirements and specify, and clearly designate on drawings, the use of single or multiconductor cable assemblies as appropriate for the project.
- ❑ Refer to [Appendix A16.4](#), SOP – Electrical Distribution System for specification and installation details.

Submittals – Supplemental Text: Because of the expectations for an extended operating life for these power distribution cable systems, MCBH is concerned that prospective contractors possess, and be able to demonstrate, a high level of competency in the specifications paragraphs related to Submittals:

Prior to scheduling any outage for purposes of completing cable splices or terminations, the contractor shall complete, in the owner's presence, the preparation of a sample cable and suitable for installation of a splice or termination kit.

Quality Assurance – Supplemental Text: In addition to the above paragraph, the Designer shall include the following supplemental text in the specifications paragraphs related to Quality Assurance:

Installer Qualifications: Engage an experienced and certified cable splicer to install, splice, and terminate medium voltage cable. The installer shall submit, for the owner's review, a certificate verifying factory training in the use of the specific splice and termination kits provided for the project. MCBH ROICC Operations personnel shall inspect and approve each installer's qualifications information before final termination work is done.

RACEWAYS AND BOXES

Limitations of Raceway Use: The Designer shall incorporate the following considerations in the construction documents.

- ❑ Nonmetallic raceways are allowable for use inside of buildings, unless specifically prohibited elsewhere in this standard.
- ❑ Nonmetallic raceways shall not be used for LAN, Fiber Optic and other Digital Data carrying wiring to reduce electromagnetic interference (EMI).
- ❑ Thin wall indenter, pressure cast, or slip-on metallic fittings are prohibited.
- ❑ Compression and Set Screw conduit connections shall be utilized.
- ❑ Conduits shall not be considered grounding systems. All conduits shall include a separate grounding conductor.
- ❑ Use of flexible conduit shall be limited to recessed lighting fixtures, motors, and equipment. These connections shall be of minimum length and maximum of 6'-0".
- ❑ Rigid Nonmetallic Conduit raceways may be used below grade, embedded in concrete, and above ground for special service applications such as corrosive locations. Schedule 80 shall be the minimum grade of Rigid Nonmetallic Conduit. The appropriate use of expansion couplings are to be utilized in the case of raceways exposed to direct sunlight.
- ❑ Elbows in buried PVC conduit runs shall be PVC covered steel.

Conduit Support: Use of non-corrosive type straps and supporting means shall be common practice for all outdoor or corrosive area applications.

General Box Requirements:

- ❑ Due to possible safety hazards and maintenance problems, the use of flush mounted and surface mounted floor outlets shall be reviewed with DCM personnel.
- ❑ Surface boxes used on or in exterior building surfaces, or on the site, shall be cast type.
- ❑ Installation: Provide title rings over outlet boxes in glazed tile walls and wood paneling.
- ❑ To reduce sound transmission, wall outlet boxes shall not be installed back-to-back in partitions.
- ❑ Where boxes are installed in concrete block walls, the box mounting height shall be at the black joint.

Floor Penetration Details: Specify concrete curbs and fire barriers where duct runs pass through concrete floor slabs and fire rated walls.

WIRING DEVICES

Ratings of Convenience Receptacles and Lighting Switches: General use receptacles and light switches shall be hospital grade, 20-amp, grounding type for general service applications. Install power receptacles with the ground pins up.

Surge Suppression Receptacles: One receptacle per office shall have surge protection and shall be equipped with both audible and light alarms. Additional requirements shall be reviewed with the Office of Design and Construction Management.

Cover Plates: All cover plates shall be stainless steel, type 302, brushed satin finish meeting Federal Specification W-P-445a, unless aesthetic requirements call for a different type of finish.

Floor Maintenance Equipment Receptacles: For corridors, large assembly areas, and other areas where floor maintenance equipment is used, locate receptacles so that a 45-foot cord will reach any part of the floor. Provide at least one duplex receptacle in each room where floor maintenance equipment is needed and receptacles are not otherwise available in accordance with the NEC.

Devices in Wet Areas: Receptacles, switches, and plates in damp or corrosive areas shall be specifically designed for use in that environment. Exterior power receptacles and interior receptacles at lavatories and service sinks shall be GFCI protected and corrosion resistant. Follow NEC requirements for while in use or weather protected receptacle covers.

PACKAGED ENGINE GENERATORS

Provide as appropriate for each project. Review specific criteria with DCM personnel.

STATIC UNINTERRUPTIBLE POWER SUPPLY

Provide as appropriated for each project. Review specific criteria with DCM personnel.

CENTRAL BATTERY INVERTER

Loads Requiring Emergency Power Supplies: In general, MCBH provides backup electrical power supply capability for the following loads:

- ❑ Emergency egress and exit lighting
- ❑ Building sprinkler systems fire pumps
- ❑ Security systems
- ❑ Selected ADA-compliant passenger elevators, where required by Code
- ❑ Communications systems equipment, computer workstations, or serves only if required to maintain operation of life safety equipment.
- ❑ Waste Water Treatment Facility
- ❑ Lift Stations
- ❑ Air Traffic Control and Radar
- ❑ PMO Operations Room
- ❑ Command Center Operations Room

Emergency Power Systems: For projects involving emergency power requirements, an emergency generator shall be utilized. When diesel generators are used, the fuel shall be #2 diesel fuel and the storage quantity shall be as small as possible and still meet code and maintenance requirements. Fuel storage shall be aboveground, typically in generator base. Standby generator installations shall comply with NFPA 110.

Inverter-based Emergency Lighting Systems: Where an emergency generator installation is not cost-effective or desirable, a central battery inverter-based emergency lighting system shall be included in the projects affecting building egress pathways or assembly areas.

MEDIUM-VOLTAGE SWITCHGEAR

Sectionalizing Switches: Refer to [Appendix A16.4](#), SOP – Electrical Distribution System for a description of the specification requirements for base distribution system sectionalizing switches.

MEDIUM-VOLTAGE TRANSFORMERS

Building Service Entrance Transformers: Refer to [Appendix A16.4](#), SOP – Electrical Distribution System for a description of the specification requirements for base distribution system transformers.

Design for Non-Resistive Loads: The Designer shall specify transformers and all other components of the electrical distribution systems to be rated for the

anticipated non-sinusoidal load currents of modern electrical/electronic equipment.

SWITCHGEAR & SWITCHBOARDS

Over-current Protective Devices: The design engineer shall conduct short circuit and coordination studies to determine protective device rating and requirements, and shall not assign the responsibility for this to the contractor.

Sizing of Secondary Service and Distribution (600 Volt and Below): The Designer shall specify new secondary service and distribution systems to be of adequate size to provide for load growth during the life of the building. The facility type and use shall be considered in determining capacity to be provided in excess of initial demand. Design criteria documents shall identify to MCBH / MCD the reserve capacity provided in the design.

Ground Fault System: A ground fault protection system, where required by Code, shall be designed to provide minimum possibility of power outage to critical building facilities. Designers, who are involved in switchgear or panelboard upgrades that serve existing feeders, shall consider a coordinated system on the feeders rather than a main service entrance type ground fault system to permit incremental settings thus providing reasonable continuity of electric service.

- ❑ Additional ground fault protection may be required at point-of-use receptacles to provide personnel protection. Exterior power outlets and interior uses at lavatories and services sinks shall be provided and shall be GFCI protected and corrosion resistant.
- ❑ Current pickup and time delay range shall be specified for all sensors. Construction documents shall state that ground fault sensors shall be set to "0" time delay and "minimum" ground current flow during construction period. When the project is turned over to MCBH the two settings shall be changed to values selected by the Designer.
- ❑ Specifications shall require that the Contractor test the system ground fault performance when first installed and submit a written record of the test to MCBH. A copy shall be included in final project data submittals. Tripping curves and characteristics shall be submitted to MCBH. Identify the method to be used to test ground fault protection in the field.

Power Factor Correction: The Designer shall review with MCBH whether any secondary voltage power factor correction is required.

Design for Available Fault Current: The Designer is responsible for determining available fault current at the point of equipment installation and for specifying bracing to withstand the available short circuit current, asymmetrical, RMS at rated voltage. Values shall be specified.

Distribution Switchboards: The Designer shall include the following provisions in construction documents:

- ❑ Do not locate plumbing facilities above the vault and switchboard space.
- ❑ The phase arrangement on three-phase busses shall be “A-B-C,” from left to right as viewed from the front of the switchboard.
- ❑ Specify provisions for future protective devices. Base provisions on need for possible future increases in electrical requirements. In order to increase flexibility provides spaces in lieu of space devices.
- ❑ Include continuous ground bus, equipped with bolted pressure clamp type lugs, full length of switchboard.
- ❑ Busses shall be copper. Design shall include provisions for future extension of main bus.

PANELBOARDS

Panelboards and Cabinets: The Designer shall include the following provisions in construction documents.

- ❑ In order to accommodate future additional wiring; provide spare conduit stubs from flush panels into suspended ceiling spaces or other accessible spaces. The spare circuits and spaces available in panel shall determine the quantity.
- ❑ Each electrical panel shall be furnished with a clear, plastic covered, typed circuit schedule mounted in a metal cardholder. The schedule shall identify circuits by room number using final numbers furnished by the appropriate design team. Verify room numbers with MCBH / MCD.
- ❑ Provide a number designation on each circuit protective device. Odd numbers shall be used in sequence down left side and even numbers in sequence down right side.
- ❑ Provide cross breaker connectors and bus for the spare circuit breakers indicated in panelboard schedules.
- ❑ Provide panelboards with a minimum of 25% additional spare single pole 20A circuit breakers for future use.
- ❑ Neutral bus shall be rated for 200%.

MOTOR-CONTROLLERS

Provide as appropriated for each project. Review specific criteria with DCM personnel.

MOTOR-CONTROL CENTERS

Motor Control: The Designer shall review the following for guidance regarding designs and specifications for electrical motor operation and control.

- ❑ **Motor Control Centers** – In areas where there are eight or more three-phase motors, a motor control center shall be provided. MCC bus work shall be braced to withstand the available short circuit, asymmetrical, RMS at rated voltage. Values shall be specified.
- ❑ **Motor Electrical Service** – With the exception of portable maintenance equipment, motors over 1/3-HP shall be three-phase.
- ❑ **Motor Starters** – Starters shall be full voltage with circuit breaker disconnect except as follows:
 - For 20-HP and larger motors on 120/208 volt systems, and for 40-HP and larger motors on 277/480-volt systems, starts shall be autotransformer or part winding type with circuit breaker disconnect.
 - ❑ Coordinate starter type selection for use with specific motor as identified in Division 15 – Mechanical.
- ❑ Control circuit voltage shall be 120 volt. Where transformers are needed, fuses shall be employed in both primary and secondary sides.
- ❑ Where two pumps are provided, with one intended as a standby, an alternator shall be incorporated which allows the stopping and automatic switching for restart through one BASC stop/start point.
- ❑ Magnetic starts shall incorporate a minimum of two auxiliary contacts and a HAND-OFF-AUTO switch.
- ❑ A motor control center schedule shall be included on the electrical drawings.
- ❑ **Electrical Interlocks:** A schematic wiring diagram of circuits involved in an interlocked system shall be included in the Designer's drawings. Devices used shall be specified.
- ❑ Starters shall have circuit breakers or MCPs. Control circuit voltage shall be 120 volt or less. Specify push button start/stop control in lieu of hand/off/automatic control for fan motors controlled through BACS.

INTERIOR LIGHTING

Fixture Mounting Locations: Fixture locations requiring special equipment or scaffolding to aid in maintenance or relamping increase ongoing operating costs and thus require written approval from MCBH / MCD. Such special equipment and provisions for its storage and access must be provided as part of the project.

Fixture Mounting Means in High or Low Bay Locations: Use of UL approved hardware and mounting boxes that comply with lighting manufacturers recommendations shall be adhered to. Fixtures and all pertaining hardware shall

be securely mounted on the buildings members or by methods approved of in the pre-design stage. Use at least 2 ea stainless steel safety wires on fixtures to maximize safety.

Fixture electrical installation method: Fixtures should be installed with a quick disconnecting means, such as a twist-lock receptacle / plug combination.

Lighting Criteria: The Designer shall coordinate with MCBH to establish and document design criteria for lighting levels during schematic design. Lighting design shall follow the recommended and accepted lighting standard levels consistent with energy conservation and visual performance.

- The number of foot-candles of illumination designed for particular functions of the building shall be in accordance with the latest edition of the Illuminating Engineering Society Handbook in accordance with MCBH Lighting Standards.
 - Furnish design calculations, either by hand or by computer output, to the Office of Design & Construction Management during the design review process to help evaluate compliance with the IES standard.
- Occupancy sensors shall be considered as a means of controlling lights and conserving energy in large rooms.
- It is presumed that fluorescent lighting will be satisfactory throughout, although there is some concern with the noise (audible & EMI) level created by such lighting. This can be reduced to a satisfactory minimum for most applications by proper electrical design. This matter shall be discussed with the Building Committee whenever the situation so dictates.
- Fluorescent lighting shall be with highest-efficiency electronic ballast's available with a two-year or more good reliability record. Harmonics shall be less than 20% Total Harmonic Distortion.

Light Fixture Switching and Control: The Designer shall use the following guidelines in circuiting, switching, and controlling interior lighting systems.

- Three-way and four-way controls shall be provided in long corridors, gymnasiums, auditoriums, and other large spaces.
- Provide inboard/outboard switching or dimming of fluorescent fixtures in private offices, classrooms, laboratories, and conference rooms.
- Occupancy sensors shall be integrated in the control schemes of classrooms, restrooms, storerooms, and multiple occupant office areas. Use sensors with combined ultrasonic/infrared technology, provided with an integral manual over-ride switch and ambient light level sensor.
- The Designer shall review the feasibility of automatic light level control areas with prominent day lighting.

Dimming Systems Designs: For general use, provide IC dimming ballast's with wall controller/switches.

- Where specialty systems have been stipulated in a project program, a comprehensive design will be considered to consist of the following at a minimum:
 - Circuiting of fixtures to be dimmed.
 - Location of controller modules.
 - Location of programmable controllers.
 - Locations of dimmer panels.
 - A detailed written sequence of operation and control modes for the dimming system.

Lamps: Linear fluorescent lamps shall be T8 with a correlated color temperature of 4100K.

Lens: Provide parabolic lens' in ceiling fixtures in classrooms and offices to prevent reflected glare and provide enhanced appearance.

Ballasts and Accessories: Fluorescent ballasts shall be efficient solid-state electronic ballasts. Electronic ballasts shall have a "true" power factor of .90 or greater with 20% or less total harmonic distortion. Fluorescent ballasts for applications in areas where ambient temperature is lower than 50° F shall have a minimum starting temperature of -20° F.

Removal and Disposal of PCB Ballast: On remodeling projects, the Designer shall consult with MCBH HAZMAT DIVISION for requirements for handling and disposal of PCB ballasts. Removal and disposal of ballasts containing PCB material shall be accomplished per EPA requirements and MCBH SOPs

- The Designer shall note in the construction document that the Contractor shall examine existing ballasts that are to be removed from service. If ballast is not clearly labeled to indicate that it does not contain PCB, it shall be assumed to contain PCB.
- PCB containing ballasts shall be placed in the ballast collection container as they are removed.
- The contractors involved shall remove all construction debris, to include ballasts per contract specifications.

EXTERIOR LIGHTING

Design of Exterior Lighting: The Designer shall refer to [Appendix A16.5](#), SOP – Lighting Methods and Materials, for MCBH requirements for lighting of walkways, parking lots, drives, and building entrances.

Fixture Mounting Locations: Fixture locations requiring special equipment or scaffolding to aid in maintenance or relamping increase ongoing operating costs and thus require written approval from MCBH / MCD. Such special equipment and provisions for its storage and access must be provided as part of the project.

PREMISES TELEPHONE WIRING

General: The Designer should be aware of the MCBH organizational structure which includes BASE COMMUNICATION CENTER AND of Networking and Computer Services thru NAVY MARINE CORPS INTRANET (NMCI), which is responsible for installation and maintenance of all MAXIMO service and computer networking systems on BASE.

- Refer to [MCBH G-6 Section](#) for detailed requirements for all MCBH telephone systems.
- At the earliest possible stages of programming or design, the Building Committee should review with the DCM, BASE COMMUNICATION CENTER AND NMCI representatives on available options for each project regarding the provision of telephones, computer and other telecommunication systems, and verify how that project's telecommunication and computer systems shall be designed and constructed.

For projects that involve the addition or relocation of telephone and/or computer communications outlets, the Designer shall review and verify outlet locations with the pace occupants. This review shall identify outlets that are needed for immediate program needs, as well as future outlet locations.

- The Designer shall include installation of all conduits, boxes, mounting devices in the project construction documents.

INTERCOMMUNICATIONS EQUIPMENT

Requirements for this will be determined on a project-by-project-basis. Intercom service may be provided through the phone system.

SCHOOL INTERCOM AND PROGRAM EQUIPMENT

Requirements for this will be determined on a project-by-project-basis. Do not provide master clock system unless directed by Building Committee.

PUBLIC ADDRESS AND MUSIC EQUIPMENT

Requirements for this will be determined on a project-by-project-basis.

SOUND-MASKING EQUIPMENT

Requirements for this will be determined on a project-by-project-basis.

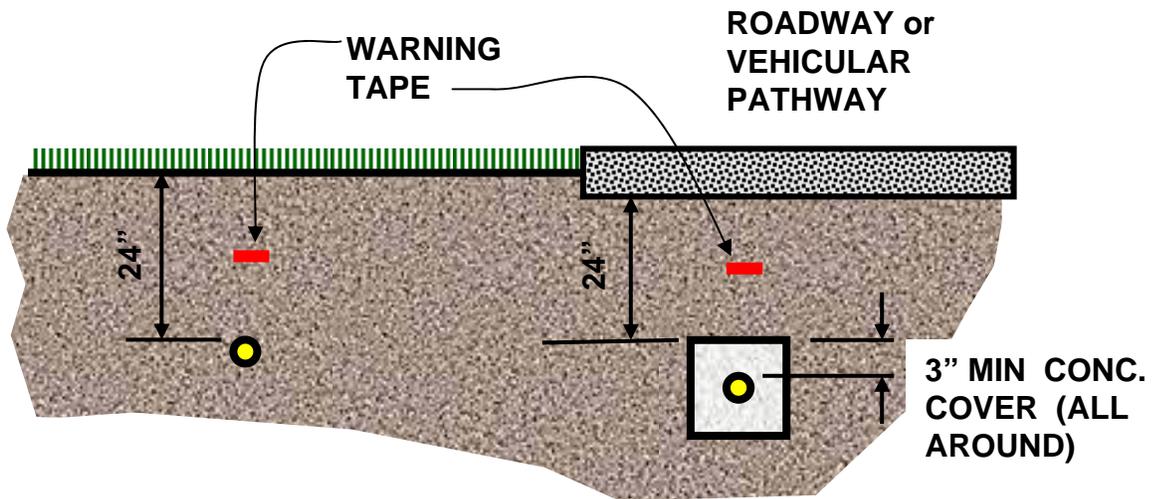
TELEVISION EQUIPMENT

Requirements for these systems will be determined on a project-by-project-basis. Where applicable, reference the MCBH standards and/or specific Audio/Video consultant.

- Cable and/or satellite television systems require written approval from MCBH Provost prior to installation. DCM shall submit this request in writing to the Provost.

Appendix I:

---- TO BE DETERMINED ---



PROPER DIRECT-BURY CONDITION

WITH NO ROADWAY ABOVE PVC CONDUIT MAY BE DIRECT-BURIED WITH A MINIMUM DEPTH OF 24" FROM TOP OF CONDUIT TO FINISH GRADE.

PROPER CONCRETE DUCT UNDER ROADWAY CONDITION

WITH A ROADWAY OR VEHICULAR PATHWAY ABOVE, CONDUIT IS REQUIRED TO BE WITHIN A CONCRETE DUCT, WITH A MINIMUM 24" COVER FROM TOP OF CONCRETE DUCT TO THE UNDERSIDE OF THE PAVED OR REINFORCED VEHICULAR SURFACE AND A 3" MINIMUM CONCRETE COVER FOR THE CONDUIT IN THE DUCT. REFER TO THE MCBH STANDARD FOR ELECTRICAL CONCRETE DUCTS.



**MARINE CORPS BASE HAWAII
FACILITIES DEPARTMENT
Engineering Branch (LFPE)
P.O. Box 63086
Kaneohe, HI 96863-3082**

Underground Electrical & Telecomm Cable Installation

NO SCALE

15 AUG 2005

APPENDIX 15

MARINE CORPS BASE HAWAII
OUTSIDE CABLE PLANT SPECIFICATIONS
G-6, Communications and Information Systems Department (CISD)

Designer shall verify and confirm that these specification are up to date with G-6.

1. Fiber Optic Cable (FOC) shall be single mode and similar to DX-series Distribution Cable, riser-rated & Plenum- Rated as manufactured by Optical Cable Corporation.
2. Wall mounted fiber distribution centers shall be lockable and similar to Wall-Mountable Distribution Center, Siecor WDC-001.L.
3. Rack mounted fiber distribution centers shall be similar to rack mounted FDC Connector housing as manufactured by Siecor FDC-CMH-072.
4. FOC termination will be simplex SC type connector, similar to 6-fiber FDC module w/single-mode pigtails, Siecor FDC-CP16-58
5. Conduits will be 4" in diameter.
6. Installer shall have Registered Communications Distribution Designer (RCDD) certify installation.
7. Installation shall comply with all applicable EIA/TIA, ITU and NEC standards.
8. Documentation shall consist of the following.
 - a. Base G-6 Network Branch:
 - i. Hard and soft copies of all FOC test results (OTDR Meter readings) for newly installed or modified fiber strands.
 - ii. Hard and soft copies of final configuration and material list.
 - b. Base Facilities Electrical Engineering Department:
 - i. Hard and soft copies of final configuration in CAD format.
 - ii. CAD drawings will identify all buildings, manholes, hand holes and conduits.
 - iii. Coordinate drawings with Ms. Carol Sinclair, Engineering Tech, Facilities Department @ 257-2171 ext. 257.
9. Network connectivity will be maintained throughout the demolition and construction. All work to be coordinated with Base G-6 Network Branch at 257-3585.
10. All inside cable drops will consist of two data and one voice.
11. All new buildings needing network connectivity will need to be connected to one of three Area Distribution Nodes (ADNs) with no less than 12 stands of SM FOC.

PROJECT NUMBER	ACTIVITY UIC	SPECIAL AREA
----------------	--------------	--------------

TO:

SECTION A FOR USE BY REQUESTER	FROM			
	CATEGORY CODE AND PROJECT TITLE	TYPE OF FUNDING	COST (000)	PROGRAM YEAR
	PROJECT DESCRIPTION		REMARKS (project description continued)	
	TYPE OF MAP	DATE	REQUESTED BY (Typed name and signature)	DATE

ANALYSIS (Place a check in box opposite each item. Y = Yes; N = No; NA = Not Applicable)			DATE RECEIVED
--	--	--	---------------

Y	N	NA	PROJECT SITING CONSIDERATION	Y	N	NA	PROJECT SITING CONSIDERATION
			a. COMPATIBLE WITH ACTIVITY PLANNED DEVELOPMENT GOALS				e. COMPLIES WITH THE FOLLOWING
			b. DEMONSTRATES SOUND PLANNING PRINCIPLES				(1) AMMUNITION AND EXPLOSIVES
			c. MEETS MINIMUM PLANNING AND SITING CRITERIA				(2) ELECTROMAGNETIC RADIATION
			d. REVISES PRIOR SITE APPROVAL				(3) AIRFIELD SAFETY
NEPA ENVIRONMENTAL ANALYSIS (CHECK APPROPRIATE BOX)							(4) NOISE INTENSITY
			<input type="checkbox"/> CATEGORICAL EXCLUSION DECISION MEMORANDUM				(5) LASER SAFETY
			<input type="checkbox"/> EA FONSI				(6) RADIOACTIVES MATERIAL
			<input type="checkbox"/> EIS RECORD OF DECISION				(7) NATURAL RESOURCES
							(8) CULTURAL / HISTORICAL
							(9) INSTALLATION RESTORATION

REFERENCE

CRITERIA CERTIFICATION(S) REQUESTED (Check)	DATE
<input type="checkbox"/> DDESB <input type="checkbox"/> NAVORDCTR <input type="checkbox"/> SPAWAR <input type="checkbox"/> NAVAIR <input type="checkbox"/> OTHER	

DATE CERTIFICATION(S) RECEIVED
_____ DDESB NAVORDCTR SPAWAR NAVAIR OTHER

ACTION	APPROVAL
<input type="checkbox"/> APPROVED <input type="checkbox"/> DISAPPROVED <input type="checkbox"/> DEFERRED	<input type="checkbox"/> HQMC <input type="checkbox"/> LOCAL

REMARKS

APPROVING OFFICIAL (Type name and signature)	DATE
--	------

OTHER APPROVAL REQUIRED

<input type="checkbox"/> AIRFIELD SAFETY WAIVER	<input type="checkbox"/> FINAL EXPLOSIVES SAFETY REVIEW	<input type="checkbox"/> STATE HISTORIC PRESERVATION
<input type="checkbox"/> SECTION 7 CONSULTATION	<input type="checkbox"/> CORPS OF ENGINEERS	<input type="checkbox"/> PERMITS _____

*Requires approval of a major change to the master plan prior to site approval. Designed Using FormFlow 2.15 HQMC/ARAE, Mar 98

TRANSFER AND ACCEPTANCE OF MILITARY REAL PROPERTY

Form Approved
OMB No. 0704-0188

PAGE OF PAGES

The public reporting burden for this collection of information is estimated to average 30 minutes per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing the burden, to the Department of Defense, Executive Services and communications Directorate (0704-0188). Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to any penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number.

PLEASE DO NOT RETURN YOUR COMPLETED FORM TO THE ABOVE ORGANIZATION.

1. FROM (Installation/ Activity/ District and ZIP Code) ROICC MARINE CORPS BASE HAWAII KANEOHE BAY, HI 96863-3068	2. DATE PREPARED (YYYYMMDD)	3. PROJECT/JOB NUMBER HI0334300R	4. SERIAL NUMBER	9. TRANSACTION DETAILS a. <input checked="" type="checkbox"/> NEW CONST. <input type="checkbox"/> EXISTING FAC. <input type="checkbox"/> CAPITAL IMP. <input type="checkbox"/> OTHER (Specify)
5. TO (Installation/ Activity/ Service, AIP Code & INSNO) MARINE CORPS BASE HAWAII FACILITIES DEPARTMENT PUBLIC WORKS DIVISION (LFP)	6. SITE/INSNO/ NAME M00318/ MCBH KBAY	7. CONTRACT NUMBER(S)	8. DRAWING NUMBER(S)	b. <input type="checkbox"/> PHYS. COM. AVAIL. <input type="checkbox"/> BENF/O <input type="checkbox"/> PARTIAL BOD <input type="checkbox"/> FINANCIAL COM. <input type="checkbox"/> OTHER (Specify)
				c. <input type="checkbox"/> DRAFT <input type="checkbox"/> INTERIM <input type="checkbox"/> FINAL
				d. EFFECTIVE DATE (YYYYMMDD)

10. ITEM NO.	11. FACILITY NO.	12. CATEGORY CODE	13. CATCODE DESCRIPTION	14. TYPE	AREA		OTHER		19. COST	20. FUND SOURCE	21. FUND ORG	22. INTEREST CODE	23. ITEM REMARKS
					15. UNIT OF MEAS1	16. TOTAL QUANTITY UM	17. UNIT OF MEAS2	18. TOTAL QUANTITY UM2					
1													
2													
3													
4													
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6													
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11													
12													

24. STATEMENT OF COMPLETION. The facilities listed hereon are in accordance with maps, drawings, and specifications and change orders approved by the authorized representative of the using agency except for the deficiencies listed on the reverse side.	25.a. ACCEPTED BY (Typed Name and Signature)	b. DATE SIGNED (YYYYMMDD)
a. TRANSFERRED BY (Typed Name and Signature)	c. TITLE (DPW/RPAO)	
c. TITLE (Area Engr./Base Engr./DPW)	26. PROPERTY VOUCHER NUMBER	
b. DATE SIGNED (YYYYMMDD)		

CON

12 MAR 2003

**STANDARD OPERATING PROCEDURE (SOP) NUMBER 11320-1
ENGINEER OPERATIONS GROUP (OPS)**

From: Assistant Commander for Operations

Subj: CONSTRUCTION CONTRACT FIRE PROTECTION SIGNATURE CHECKLIST

Ref: (a) PACNAVFACENGCOM Instruction 11320.5C of 01 Oct 87

**Encl: (1) Construction Contract Fire Protection Signature Checklist of
07 February 2003**

1. Purpose. This SOP is to provide a simplified fire protection signature checklist that would be filled out and forwarded to DPM04 prior to requesting final project fire protection testing and acceptance by DPM408.

2. Applicability. This SOP applies to all OICCs and ROICCs within the PACNAVFACENGCOM Area of Responsibility (AOR).

3. Background.

a. Projects requiring fire protection testing and acceptance is the responsibility of DPM408 per reference (a). With the limited resources available today, effective use of DPM408 personnel is required due to heavy workload and additional assigned tasking. The checklist identified in enclosure (1) will reduce major fire protection system omissions, minimize punchlist items and repetitive inspections, and provide effective use of DPM408 personnel for final fire protection testing and acceptance.

b. The signature checklist will supplement any local or regional procedures currently being used successfully in the field at various ROICC offices.

4. Procedures and Responsibilities.

a. Projects requiring final fire protection approval and acceptance will have attached checklist (1) completed and forwarded to DPM408 prior to requesting final approval site visit by DPM408 personnel. Adequate notice, a minimum of one week locally and two weeks for overseas inspections, should be provided to DPM408 prior to requesting site visit for final testing and acceptance of fire protection systems.

b. Projects in the Far East will follow established procedures already in place for that area. Final fire protection testing and acceptance is the responsibility of the OICC Far East Fire Protection Engineer located at PWC YOKOSUKA.

5. Expiration. This SOP will remain in effect until superseded or cancelled.



P. T. FULIGNI

Distribution:

OICC Far East

OICC Marianas

ROICC Diego Garcia

ROICC Kahoolawe

ROICC MCB Hawaii

ROICC Pearl Harbor

ROICC Singapore

ROICC Thailand

Copy to:

DPM04/406/408

CON

CON 522

Construction Contract Fire Protection Signature Checklist:

Project Title and Contract Number _____
_____.

1. The Quality Control (QC) U.S. Registered Fire Protection Engineer (FPE) meets the requirements, and has been assigned the roles and responsibilities indicated in the specifications. The QC FPE is _____.
FPE Registration Number _____, State where Registered as FPE _____.

2. All Fire Protection submittals (materials, calculations, shop drawings, etc.) and related FP issues for the project have been reviewed, coordinated, and approved by the QC FPE per specifications. Copies have been forward to PACDIV FPE, DPM Code 408.
Yes _____, No _____. If no, provide explanation on separate sheet.

3. As required by the specifications, periodic site visits have been conducted by the QC FPE.
Yes _____, No _____. If no, provide explanation on separate sheet.

4. All preliminary acceptance tests have been witnessed by the QC FPE. As the QC FPE, I certify that all preliminary tests have been completed per plans and specifications, and corrections have been made and request a formal inspection and test of the systems.

QC FPE signature _____ Date _____.

QC Manager signifies satisfactory completion of above items on fire protection systems per plans and specifications.

QC Manager signature _____ Date _____.

5. ROICC has witnessed the functional tests and confirms that the project's fire protection systems are ready for final acceptance testing by PACDIV FPE.

QA Representative signature _____ Date _____.
Project CME signature _____ Date _____.

Note: Send completed checklist by email or facsimile to DPM408 minimum 1 week for Hawaii-based ROICCs and 2 weeks for overseas ROICCs (4 week advance travel notice required) prior to requesting final EFD fire protection testing and acceptance. Provide copy of the completed signed checklist to DPM408 FPE upon arrival at the project site.

ROICC POC is _____ Phone number _____,
facsimile _____, email _____.

ENCLOSURE (1)

Contractor's Material and Test Certificate for Aboveground Piping													
<p>PROCEDURE Upon completion of work, inspection and tests shall be made by the contractor's representative and witnessed by the property owner or their authorized agent. All defects shall be corrected and system left in service before contractor's personnel finally leave the job.</p> <p>A certificate shall be filled out and signed by both representatives. Copies shall be prepared for approving authorities, owners, and contractor. It is understood the owner's representative's signature in no way prejudices any claim against contractor for faulty material, poor workmanship, or failure to comply with approving authority's requirements or local ordinances.</p>													
Property name						Date							
Property address													
Plans	Accepted by approving authorities (names)												
	Address												
	Installation conforms to accepted plans						<input type="checkbox"/> Yes		<input type="checkbox"/> No				
Equipment used is approved						<input type="checkbox"/> Yes		<input type="checkbox"/> No					
If no, explain deviations													
Instructions	Has person in charge of fire equipment been instructed as to location of control valves and care and maintenance of this new equipment? If no, explain						<input type="checkbox"/> Yes		<input type="checkbox"/> No				
	Have copies of the following been left on the premises?						<input type="checkbox"/> Yes		<input type="checkbox"/> No				
1. System components instructions						<input type="checkbox"/> Yes		<input type="checkbox"/> No					
2. Care and maintenance instructions						<input type="checkbox"/> Yes		<input type="checkbox"/> No					
3. NFPA 25						<input type="checkbox"/> Yes		<input type="checkbox"/> No					
Location of system		Supplies buildings											
Sprinklers	Make		Model		Year of manufacture		Orifice size	Quantity		Temperature rating			
Pipe and fittings		Type of pipe _____ Type of fittings _____											
Alarm valve or flow indicator		Alarm device					Maximum time to operate through test connection						
		Type		Make		Model	Minutes		Seconds				
Dry pipe operating test		Dry valve					Q. O. D.						
		Make		Model		Serial no.	Make		Model	Serial no.			
		Time to trip through test connection ^{a,b}		Water pressure		Air pressure		Trip point air pressure		Time water reached test outlet ^{a,b}		Alarm operated properly	
		Minutes	Seconds	psi		psi		psi		Minutes	Seconds	Yes	No
Without Q.O.D.													
With Q.O.D.													
If no, explain													

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NFPA 13 (p. 1 of 3)

^a Measured from time inspector's test connection is opened
^b NFPA 13 only requires the 60-second limitation in specific sections

FIGURE 24.1 Contractor's Material and Test Certificate for Aboveground Piping.

Deluge and preaction valves	Operation <input type="checkbox"/> Pneumatic <input type="checkbox"/> Electric <input type="checkbox"/> Hydraulics							
	Piping supervised <input type="checkbox"/> Yes <input type="checkbox"/> No				Detecting media supervised <input type="checkbox"/> Yes <input type="checkbox"/> No			
	Does valve operate from the manual trip, remote, or both control stations? <input type="checkbox"/> Yes <input type="checkbox"/> No							
	Is there an accessible facility in each circuit for testing? <input type="checkbox"/> Yes <input type="checkbox"/> No						If no, explain	
	Make	Model	Does each circuit operate supervision loss alarm?		Does each circuit operate valve release?		Maximum time to operate release	
		Yes	No	Yes	No	Minutes	Seconds	
Pressure reducing valve test	Location and floor	Make and model	Setting	Static pressure		Residual pressure (flowing)		Flow rate
				Inlet (psi)	Outlet (psi)	Inlet (psi)	Outlet (psi)	Flow (gpm)
Test description	<p>Hydrostatic: Hydrostatic tests shall be made at not less than 200 psi (13.6 bar) for 2 hours or 50 psi (3.4 bar) above static pressure in excess of 150 psi (10.2 bar) for 2 hours. Differential dry-pipe valve clappers shall be left open during the test to prevent damage. All aboveground piping leakage shall be stopped.</p> <p>Pneumatic: Establish 40 psi (2.7 bar) air pressure and measure drop, which shall not exceed 1½ psi (0.1 bar) in 24 hours. Test pressure tanks at normal water level and air pressure and measure air pressure drop, which shall not exceed 1½ psi (0.1 bar) in 24 hours.</p>							
Tests	All piping hydrostatically tested at _____ psi (____ bar) for _____ hours						If no, state reason	
	Dry piping pneumatically tested <input type="checkbox"/> Yes <input type="checkbox"/> No							
	Equipment operates properly <input type="checkbox"/> Yes <input type="checkbox"/> No							
	Do you certify as the sprinkler contractor that additives and corrosive chemicals, sodium silicate or derivatives of sodium silicate, brine, or other corrosive chemicals were not used for testing systems or stopping leaks? <input type="checkbox"/> Yes <input type="checkbox"/> No							
	Drain test	Reading of gauge located near water supply test connection: _____ psi (____ bar)				Residual pressure with valve in test connection open wide: _____ psi (____ bar)		
Underground mains and lead-in connections to system risers flushed before connection made to sprinkler piping								
Verified by copy of the Contractor's Material and Test Certificate for Underground Piping. <input type="checkbox"/> Yes <input type="checkbox"/> No						Other	Explain	
Flushed by installer of underground sprinkler piping <input type="checkbox"/> Yes <input type="checkbox"/> No								
If powder-driven fasteners are used in concrete, has representative sample testing been satisfactorily completed? <input type="checkbox"/> Yes <input type="checkbox"/> No						If no, explain		
Blank testing gaskets	Number used		Locations				Number removed	
Welding	Welding piping <input type="checkbox"/> Yes <input type="checkbox"/> No							
	If yes . . .							
	Do you certify as the sprinkler contractor that welding procedures used complied with the minimum requirements of AWS B2.1, ASME Section IX <i>Welding and Brazing Qualifications</i> , or other applicable qualification standard as required by the AHJ?						<input type="checkbox"/> Yes	<input type="checkbox"/> No
	Do you certify that all welding was performed by welders or welding operators qualified in accordance with the minimum requirements of AWS B2.1, ASME Section IX <i>Welding and Brazing Qualifications</i> , or other applicable qualification standard as required by the AHJ?						<input type="checkbox"/> Yes	<input type="checkbox"/> No
	Do you certify that the welding was conducted in compliance with a documented quality control procedure to ensure that (1) all discs are retrieved; (2) that openings in piping are smooth, that slag and other welding residue are removed; (3) the internal diameters of piping are not penetrated; (4) completed welds are free from cracks, incomplete fusion, surface porosity greater than 1/16 in. diameter, undercut deeper than the lesser of 25% of the wall thickness or 1/32 in.; and (5) completed circumferential butt weld reinforcement does not exceed 3/32 in.?						<input type="checkbox"/> Yes	<input type="checkbox"/> No

FIGURE 24.1 Continued

Cutouts (discs)	Do you certify that you have a control feature to ensure that all cutouts (discs) are retrieved? <input type="checkbox"/> Yes <input type="checkbox"/> No	
Hydraulic data nameplate	Nameplate provided <input type="checkbox"/> Yes <input type="checkbox"/> No	If no, explain
Remarks	Date left in service with all control valves open	
Signatures	Name of sprinkler contractor	
	Tests witnessed by	
	The property owner or their authorized agent (signed)	Title Date
	For sprinkler contractor (signed)	Title Date
Additional explanations and notes		

FIGURE 24.1 *Continued*

INSPECTION AND TESTING FORM

SERVICE ORGANIZATION

Name: _____

Address: _____

Representative: _____

License No.: _____

Telephone: _____

MONITORING ENTITY

Contact: _____

Telephone: _____

Monitoring Account Ref. No.: _____

TYPE TRANSMISSION

McCulloh

Multiplex

Digital

Reverse Priority

RF

Other (Specify) _____

Control Unit Manufacturer: _____

Circuit Styles: _____

Number of Circuits: _____

Software Rev.: _____

Last Date System Had Any Service Performed: _____

Last Date that Any Software or Configuration Was Revised: _____

DATE: _____

TIME: _____

PROPERTY NAME (USER)

Name: _____

Address: _____

Owner Contact: _____

Telephone: _____

APPROVING AGENCY

Contact: _____

Telephone: _____

SERVICE

Weekly

Monthly

Quarterly

Semiannually

Annually

Other (Specify) _____

Model No.: _____

ALARM-INITIATING DEVICES AND CIRCUIT INFORMATION

Quantity	Circuit Style	
_____	_____	Manual Fire Alarm Boxes
_____	_____	Ion Detectors
_____	_____	Photo Detectors
_____	_____	Duct Detectors
_____	_____	Heat Detectors
_____	_____	Waterflow Switches
_____	_____	Supervisory Switches
_____	_____	Other (Specify): _____

Alarm verification feature is disabled _____ enabled _____.

(NFPA Inspection and Testing, 1 of 4)

FIGURE 10.6.2.3 Example of an Inspection and Testing Form.

ALARM NOTIFICATION APPLIANCES AND CIRCUIT INFORMATION

Quantity	Circuit Style	
_____	_____	Bells
_____	_____	Horns
_____	_____	Chimes
_____	_____	Strobes
_____	_____	Speakers
_____	_____	Other (Specify): _____

No. of alarm notification appliance circuits: _____
 Are circuits monitored for integrity? Yes No

SUPERVISORY SIGNAL-INITIATING DEVICES AND CIRCUIT INFORMATION

Quantity	Circuit Style	
_____	_____	Building Temp.
_____	_____	Site Water Temp.
_____	_____	Site Water Level
_____	_____	Fire Pump Power
_____	_____	Fire Pump Running
_____	_____	Fire Pump Auto Position
_____	_____	Fire Pump or Pump Controller Trouble
_____	_____	Fire Pump Running
_____	_____	Generator In Auto Position
_____	_____	Generator or Controller Trouble
_____	_____	Switch Transfer
_____	_____	Generator Engine Running
_____	_____	Other: _____

SIGNALING LINE CIRCUITS

Quantity and style of signaling line circuits connected to system (see NFPA 72, Table 6.6.1):

Quantity _____ Style(s) _____

SYSTEM POWER SUPPLIES

(a) Primary (Main): Nominal Voltage _____ Amps _____
 Overcurrent Protection: Type _____ Amps _____
 Location (of Primary Supply Panelboard): _____
 Disconnecting Means Location: _____

(b) Secondary (Standby): _____ Storage Battery: Amp-Hr. Rating _____
 Calculated capacity to operate system, in hours: _____ 24 _____ 60
 _____ Engine-driven generator dedicated to fire alarm system:
 Location of fuel storage: _____

TYPE BATTERY

Dry Cell
 Nickel-Cadmium
 Sealed Lead-Acid
 Lead-Acid
 Other (Specify): _____

(c) Emergency or standby system used as a backup to primary power supply, instead of using a secondary power supply:
 _____ Emergency system described in NFPA 70, Article 700
 _____ Legally required standby described in NFPA 70, Article 701
 _____ Optional standby system described in NFPA 70, Article 702, which also meets the performance requirements of Article 700 or 701.

(NFPA Inspection and Testing, 2 of 4)

FIGURE 10.6.2.3 Continued

PRIOR TO ANY TESTING				
NOTIFICATIONS ARE MADE	Yes	No	Who	Time
Monitoring Entity	<input type="checkbox"/>	<input type="checkbox"/>	_____	_____
Building Occupants	<input type="checkbox"/>	<input type="checkbox"/>	_____	_____
Building Management	<input type="checkbox"/>	<input type="checkbox"/>	_____	_____
Other (Specify)	<input type="checkbox"/>	<input type="checkbox"/>	_____	_____
AHJ Notified of Any Impairments	<input type="checkbox"/>	<input type="checkbox"/>	_____	_____

SYSTEM TESTS AND INSPECTIONS			
TYPE	Visual	Functional	Comments
Control Unit	<input type="checkbox"/>	<input type="checkbox"/>	_____
Interface Equipment	<input type="checkbox"/>	<input type="checkbox"/>	_____
Lamps/LEDS	<input type="checkbox"/>	<input type="checkbox"/>	_____
Fuses	<input type="checkbox"/>	<input type="checkbox"/>	_____
Primary Power Supply	<input type="checkbox"/>	<input type="checkbox"/>	_____
Trouble Signals	<input type="checkbox"/>	<input type="checkbox"/>	_____
Disconnect Switches	<input type="checkbox"/>	<input type="checkbox"/>	_____
Ground-Fault Monitoring	<input type="checkbox"/>	<input type="checkbox"/>	_____

SECONDARY POWER			
TYPE	Visual	Functional	Comments
Battery Condition	<input type="checkbox"/>		_____
Load Voltage		<input type="checkbox"/>	_____
Discharge Test		<input type="checkbox"/>	_____
Charger Test		<input type="checkbox"/>	_____
Specific Gravity		<input type="checkbox"/>	_____

TRANSIENT SUPPRESSORS	<input type="checkbox"/>		_____
REMOTE ANNUNCIATORS	<input type="checkbox"/>	<input type="checkbox"/>	_____
NOTIFICATION APPLIANCES			_____
Audible	<input type="checkbox"/>	<input type="checkbox"/>	_____
Visible	<input type="checkbox"/>	<input type="checkbox"/>	_____
Speakers	<input type="checkbox"/>	<input type="checkbox"/>	_____
Voice Clarity		<input type="checkbox"/>	_____

INITIATING AND SUPERVISORY DEVICE TESTS AND INSPECTIONS							
Loc. & S/N	Device Type	Visual Check	Functional Test	Factory Setting	Measured Setting	Pass	Fail
_____	_____	<input type="checkbox"/>	<input type="checkbox"/>	_____	_____	<input type="checkbox"/>	<input type="checkbox"/>
_____	_____	<input type="checkbox"/>	<input type="checkbox"/>	_____	_____	<input type="checkbox"/>	<input type="checkbox"/>
_____	_____	<input type="checkbox"/>	<input type="checkbox"/>	_____	_____	<input type="checkbox"/>	<input type="checkbox"/>
_____	_____	<input type="checkbox"/>	<input type="checkbox"/>	_____	_____	<input type="checkbox"/>	<input type="checkbox"/>
_____	_____	<input type="checkbox"/>	<input type="checkbox"/>	_____	_____	<input type="checkbox"/>	<input type="checkbox"/>
_____	_____	<input type="checkbox"/>	<input type="checkbox"/>	_____	_____	<input type="checkbox"/>	<input type="checkbox"/>

Comments: _____

(NFPA Inspection and Testing, 3 of 4)

FIGURE 10.6.2.3 Continued

EMERGENCY COMMUNICATIONS EQUIPMENT		Visual	Functional	Comments
Phone Set	<input type="checkbox"/>	<input type="checkbox"/>		
Phone Jacks	<input type="checkbox"/>	<input type="checkbox"/>		
Off-Hook Indicator	<input type="checkbox"/>	<input type="checkbox"/>		
Amplifier(s)	<input type="checkbox"/>	<input type="checkbox"/>		
Tone Generator(s)	<input type="checkbox"/>	<input type="checkbox"/>		
Call-in Signal	<input type="checkbox"/>	<input type="checkbox"/>		
System Performance	<input type="checkbox"/>	<input type="checkbox"/>		

INTERFACE EQUIPMENT	Visual	Device Operation	Simulated Operation
(Specify) _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(Specify) _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(Specify) _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

SPECIAL HAZARD SYSTEMS	Visual	Device Operation	Simulated Operation
(Specify) _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(Specify) _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(Specify) _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Special Procedures: _____

Comments: _____

SUPERVISING STATION MONITORING	Yes	No	Time	Comments
Alarm Signal	<input type="checkbox"/>	<input type="checkbox"/>		
Alarm Restoration	<input type="checkbox"/>	<input type="checkbox"/>		
Trouble Signal	<input type="checkbox"/>	<input type="checkbox"/>		
Supervisory Signal	<input type="checkbox"/>	<input type="checkbox"/>		
Supervisory Restoration	<input type="checkbox"/>	<input type="checkbox"/>		

NOTIFICATIONS THAT TESTING IS COMPLETE	Yes	No	Who	Time
Building Management	<input type="checkbox"/>	<input type="checkbox"/>		
Monitoring Agency	<input type="checkbox"/>	<input type="checkbox"/>		
Building Occupants	<input type="checkbox"/>	<input type="checkbox"/>		
Other (Specify)	<input type="checkbox"/>	<input type="checkbox"/>		

The following did not operate correctly: _____

System restored to normal operation: Date: _____ Time: _____

THIS TESTING WAS PERFORMED IN ACCORDANCE WITH APPLICABLE NFPA STANDARDS.

Name of Inspector: _____ Date: _____ Time: _____

Signature: _____

Name of Owner or Representative: _____

Date: _____ Time: _____

Signature: _____

(NFPA Inspection and Testing, 4 of 4)

FIGURE 10.6.2.3 Continued



UNITED STATES MARINE CORPS
MARINE CORPS BASE HAWAII
BOX 63002 KANEHOE BAY HAWAII 96863-3002

IN REPLY REFER TO:
BaseO P5100.19A
BSD
29 OCT 2010

BASE ORDER P5100.19A

From: Commanding Officer, Marine Corps Base Hawaii
To: Distribution List

Subj: OCCUPATIONAL SAFETY AND HEALTH (OSH) PROGRAM

Ref: (a) Public Law 91-596, "Occupational Safety and Health Act of 1970"
(NOTAL)
(b) 29 CFR 1910, "General Industry Standards"
(c) 29 CFR 1926, "Construction Standards"
(d) 29 CFR 1960, "Basic Program Elements for Federal Employee
Occupational Safety and Health Programs and Related Matters"
(NOTAL)
(e) E.O. 12196, "Occupational Safety and Health Programs for Federal
Employees" (NOTAL)
(f) DOD Directive 1000.3 w/Ch 1, "Safety and Occupational Health
Policy for the Department of Defense" of 29 March 1979 (NOTAL)
(g) DOD Instruction 6050.5, "DOD Hazard Communication (HAZCOM)
Program" of 15 August 2006 w/CH 1
(h) DOD Instruction 6055.1, "DoD Safety and Occupational Health
Program" of 19 August 1998
(i) SECNAVINST 5100.10, "DON Policy for Safety, Mishap Prevention,
Occupational Health and Fire Protection Programs"
(j) OPNAVINST 4110.2, "Hazardous Material Control and Management
(HMC&M)"
(k) OPNAVINST 5100.23G, "Navy Safety and Occupational Health (OSH)
Program Manual"
(l) MCO 5100.8, "Marine Corps Occupational Safety and Health (OSH)
Policy Order"
(m) MCO 5100.19, "Marine Corps Traffic Safety Program (DRIVESAFE)"
(n) OPNAVINST 5100.24, "Navy System Safety Program Policy"
(o) MCO 5100.25, "Hazardous Material Information System"
(p) MCO 5100.29, "Marine Corps Safety Program"
(q) MCO 5102.1, "Navy and Marine Corps Mishap and Safety Investigation
Reporting and Record Keeping Manual"
(r) MCO 5110.1, "Motor Vehicle Traffic Supervision"
(s) MCO 6260.1, "Marine Corps Hearing Conservation Program"
(t) COMNAVAIRFORINST 4790.2, "The Naval Aviation Maintenance
Program (NAMP)"
(u) NAVAIR 01-1A-35, "Aircraft Fuel Cells and Tanks Manual"
(v) NAVSEA S6470-AA-SAF-010, "Naval Maritime Confined Space Program"
(NOTAL)
(w) NAVFAC Guide Specification 13219A, "Cleaning Petroleum Storage
Tanks"
(x) NAVFACINST 5100.14, "Naval Occupational Safety and Health
Deficiency Abatement Program Ashore"
(y) NAVMC Directive 5100.8, "Marine Corps Occupational Safety and
Health (OSH) Program Manual"
(z) OPNAVINST 5100.27, "Navy Laser Hazards Control Program"

- (aa) NAVMEDCOMINST 6470.2, "Laser Radiation Health Hazards"
- (ab) NFPA 30, "Flammable and Combustible Liquids Code, National Fire Protection Association"
- (ac) ANSI Z88.2, "Practices for Respiratory Protection"
- (ad) ANSI Z136.1, "Safe Use of Lasers"
- (ae) ANSI Z244.1, "Safety Requirements for the Lockout/Tagout of Energy Sources"
- (af) ANSI Z41.1, "American National Standard for Personal Protection-Protective Footwear"
- (ag) ANSI Z358.1, "Emergency Eyewash and Shower Equipment"
- (ah) ANSI Z117.1, "Safety Requirements for Confined Spaces"
- (ai) API Std 2015, "Safe Entry and Cleaning of Petroleum Storage Tanks"
- (aj) NFPA 327, "Cleaning or Safeguarding Small Tanks and Containers without Entry"
- (ak) EM 385-1-1, "U.S. Army Corps of Engineers Safety and Health Requirements Manual"
- (al) MCO 5104.1, "Navy Laser Hazards Control Program"
- (am) Federal Standard 313C, "Material Safety, Data Transportation Data and Disposal Data for Hazardous Materials Furnished to Government Activities"

Encl: (1) Locator Sheet

1. Situation. To promulgate an Occupational Safety and Health (OSH) Program for Marine Corps Base (MCB) Hawaii, per the references.
2. Cancellation. Base Order P5100.19.
3. Mission. This Order provides guidance in the organization and administration of the Occupational Safety and Health program, and outlines the minimum standards to be maintained in these areas. The Commanding Officer will invoke any measure, in addition to those outlined herein, deemed necessary to avoid and abate a hazardous situation.
4. Execution
 - a. Commander's Intent and Concept of Operations
 - (1) Commander's Intent. This Order applies to all commands, tenants, departments, sections, and contractors aboard MCB Hawaii.
 - (2) Concept of Operations. Each activity or organization will comply with this Order. The Base Safety Directorate in coordination with activity and organization safety personnel will conduct OSH inspections, safety training, and evacuation drills in accordance with the above references.
5. Administration and Logistics. This Order applies to all service members and civilians, who are either attached to, stationed at, residing within, employed on, or visiting any government property administered by the Commanding Officer, MCB Hawaii.

6. Command and Signal

a. Command. All Commanding Officers, Department Heads, and Directors will ensure full compliance with this Order.

b. Signal. This Order is effective the date signed.



R. D. RICE

Distribution: A

OSH PROGRAM

CHAPTER 13

PERSONAL PROTECTIVE EQUIPMENT

SECTION 1. GENERAL

13101. PURPOSE. The Personal Protective Equipment (PPE) program is designed to comply with DoD and Federal regulations regarding the employer's and employee's responsibilities to provide, enforce and use PPE.

13102. POLICY. The issue, maintenance, and use of PPE are necessary for personnel (military and civilian) protection, and to protect property, materials, and equipment. It is important that all PPE be kept clean and properly maintained. Cleaning is particularly important for eye and face protection where dirty or fogged lenses could impair vision. For the purpose of compliance, PPE will be inspected, cleaned, and maintained at regular intervals so that the PPE provides the requisite protection. It is also important to ensure that contaminated PPE which cannot be decontaminated is disposed of in a manner that protects employees from exposure hazards. Expenditure of funds for protective equipment is economical, since injuries, compensation claims, and loss of materials and equipment are reduced. All MCB Hawaii units, departments, and tenant activities will provide and maintain personal protective clothing/equipment per this section, except prescription safety glasses for military and civil service personnel.

13103. SCOPE. This Order applies to all MCB Hawaii personnel and tenants. Contractors and vendors will comply with references (b), (c) and State of Hawaii Occupational Safety and Health (HIOSH) standards. The Resident Officer in Charge of Construction (ROICC) will also refer to other references for safety and health compliance, as applicable.

13104. METHODS. Engineering and administrative controls will be the primary methods to eliminate or minimize hazard exposure in the workplace. When such controls are not practical, PPE will be employed to reduce or eliminate personnel exposure to hazards. PPE will not be a substitute for engineering or administrative controls.

13105. PROCEDURE. The Director, Base Safety Directorate is responsible to designate hazardous work areas, processes, and occupations which require the use of PPE. The major categories of PPE include, but are not limited to: head, eye, face, and foot protection, hearing protection, respiratory protection, and body protection.

13106. TRAINING. Because of the possible serious consequences of misuse, it is imperative that PPE is properly used. Therefore, training in the proper use, limitations, care and maintenance of PPE is mandatory for each individual prior to being allowed to use it.

13107. ENFORCEMENT OF PROGRAM. Each supervisor is responsible to enforce the proper use of PPE consistent with applicable rules and regulations.

13108. GOVERNMENT-FURNISHED ITEMS. PPE will be furnished to the employee by the government at no cost to the employee. Items include but are not limited to:

- a. Respirators.
- b. Eye protection and face shields.
- c. Hearing protection.
- d. Hard hats.
- e. Welders helmets.
- f. Safety shoes and specialty footwear.
- g. Aprons, protective suits and gloves.

Note: The Director, Base Safety Directorate may prescribe other items of protective clothing or equipment per references (k), (l) and other consensus standards if they are necessary to prevent injury, illness, or disease, and the Government will derive the principle benefit. Procurement of nonstandard stock items must be approved by the Director, Base Safety Directorate.

13109. EMPLOYEE-FURNISHED ITEMS. PPE furnished by the employee is not authorized.

13110. PERSONAL ATTIRE. When specific items of personal attire are judged to be hazardous to an employee based upon the operation or work environment, their use will be prohibited. Provision of everyday suitable attire, including appropriate shoes, normally worn by prudent individuals to avoid unnecessary risk, is the responsibility of the employee and will be considered a condition of employment.

1. Employees/personnel are required to:

a. Wear or use command approved protective clothing and/or equipment to safely perform the work.

b. Report for work suitably groomed and clothed for assigned tasks.

(1) Suitable clothing is clothing that is normally worn and in general use by members of the trade or profession involved.

(2) Certain hair styles and beards may become hazardous around machinery and open flames. They may also interfere with vision or respiratory protection devices. Such hair will be suitably restrained in caps or nets when required. The use of respirators with facial hair that will interfere with an airtight seal is prohibited.

(3) Jewelry and loose clothing are prohibited in areas where they subject the wearer to increased hazard (i.e. rotating and reciprocating equipment, table saws and electrical work).

(4) Individuals requiring sight correction, hearing aids, or prosthetic devices will maintain such devices in good working order and will use them.

2. Violators of OSH regulations or instructions are subject to disciplinary action per Civilian Manpower Management Instruction (CMMI) or the Uniform Code of Military Justice (UCMJ). Such violations or below average performance pertaining to the OSH Program will be dealt with in accordance with established procedures and guidelines.

SECTION 2. HEAD, EYE AND FACE PROTECTION

13201. GENERAL. MCB Hawaii military and civilian personnel performing work in areas which present hazards to the head, eyes, or face will be provided protective equipment which meet the appropriate American National Standards Institute (ANSI) standards and will properly use such equipment.

13202. HEAD PROTECTION. Head protection (helmets) is designed to provide protection from impact and penetration hazards caused by falling objects. Head protection is also available which provides protection from electrical shock and burns.

1. Safety helmets protect against impact, penetration, and electric shock. Types of these helmets are:
 - a. Full brimmed.
 - b. Brimless with beak.
 - c. Class A, Limited voltage resistance.
 - d. Class B, High voltage resistance.
 - e. Class C, No voltage resistance.
 - f. Class D, Protective for fire fighters.
2. All safety helmets will be identified on the inside with the manufacturer's name, ANSI designation Z89.1, and Class A, B, C, or D.
3. Bump caps are a thick-shell, lightweight plastic cap and are not to be used in place of a safety helmet.
4. Hair protection usually consists of a cloth cap or net to completely contain the hair to prevent entry into machines.
5. Before each use, the user will visually inspect the safety helmet for shell or suspension damage.
6. Head-hazardous occupations are those where there is a potential of head injury caused by falling or flying objects, and from limited electric shock and burns. Areas in which such hazards are found will be designated head-hazardous areas.
7. Wear industrial head protection appropriate to the exposure during the entire work shift. All personnel entering work areas identified above or in areas indicated as a hard-hat or head-hazard area, will wear appropriate head protection while in such areas.

13203. EYE AND FACE PROTECTION. MCB Hawaii personnel employed in eye-hazardous areas or operations will be provided adequate eye protection at government expense. All persons in the vicinity of such areas or operations, including other workers, supervisors, or visitors, must also wear eye protection. In order for Base Safety Directorate to establish an effective sight conservation program per references (b), (k) and (l), eye hazardous areas, occupations, and processes will be identified by the Director, Base Safety Directorate, or an industrial hygienist, in conjunction with the organization's Safety Officer.

1. Survey. A complete survey of all activity work areas and processes will be conducted annually or as required by an industrial hygienist. This survey will determine which personnel require eye or face protection from physical or chemical hazards, and the type of protection required. The survey will also consider the eye hazards associated with exposure to various forms of electromagnetic radiation, e.g., laser, ultraviolet, infrared, and microwave radiation. This survey is a part of the workplace inspection program outlined in Chapter 7. The Director, Base Safety Directorate will maintain a list of all areas, processes, and occupations that require eye protection.
2. Posting. Tenants will post all areas designated as eye-hazardous by the Director, Base Safety Directorate with an appropriate warning sign.
3. Emergency Eyewash Stations. Emergency eyewash stations will be provided in all work areas where there is a potential for employees to be exposed to corrosive materials, hazardous solvents, etc. All such emergency stations will be located where they are easily accessible to those in need, and will be installed, maintained, flushed and inspected in accordance with references (b), (ag) and the manufacturer's recommendations. Plumbed eyewash stations will be inspected and flushed weekly, while portable eyewash stations will be inspected weekly and flushed quarterly or per the manufacturer's instructions.
4. Contact Lens Restrictions. Personnel will not wear contact lenses when assigned to work involving the handling of caustics, acids, toxic chemicals, or dust. Such materials are difficult to remove without delay when the material is under the contact lens. Refer questionable cases concerning contact lenses or visual problems to the Branch Medical Clinic, Pearl Harbor, for resolution.

SECTION 3. SIGHT CONSERVATION PROGRAM

13301. SIGHT CONSERVATION PROGRAM. The objectives of this program are to safeguard personnel from eyestrain or eye injuries due to corrective vision, and to protect them against other eye injuries through use of protective eyewear. The Base Safety Directorate will provide prescription safety glasses for those personnel whose job description requires them to perform work in an eye hazardous area. All prescription safety glasses will have side shields and will comply with ANSI Z-87.

1. Eye Hazardous Areas. All areas where an employee may be exposed to eye or face hazards from flying particles, molten metal, liquid chemicals, acids or caustic liquids, chemical gases or vapors, or potentially injurious light radiation will be designated eye hazardous areas and will be posted in accordance with reference (1). Personnel working or visiting such areas will be furnished with and are required to wear proper eye/face protection.

a. Signs will be prominently displayed with the wording "Eye Hazardous Area" at the entrances and inside eye hazardous areas.

b. In addition to the above, supervisors will place decals or signs with the wording "Eye Protection Required When Operating This Machine" on equipment involving eye hazardous operations.

2. Eye Hazardous Operations. The following areas or operations are considered eye hazardous and must be surveyed by supervisors/competent persons for required eye protection:

a. Areas

- (1) Metal/Welding Shops.
- (2) Body/Fender Shop and Machine Shops.

- (3) Carpentry/Paint Shops.
- (4) Packing and Crating Shops.
- (5) Woodworking and Automotive/Marina Shops.
- (6) Other areas as may be identified by competent authority.

b. Operations

- (1) Grinding.
- (2) Drilling.
- (3) Sandblasting.
- (4) Spray painting.
- (5) Scraping, chipping, and scaling (wire brush or hand tool operations).
- (6) Riveting.
- (7) Welding, burning, brazing, and cutting operations.
- (8) Handling and mixing acids or caustics.
- (9) Handling molten metal, soldering, pouring wire rope sockets.
- (10) Machining metallic materials where chips are present.
- (11) Operations involving hand or power tools where chips and dust are present.
- (12) Installing or removing fiberglass or other fibrous insulating material.
- (13) Operating or riding on fork trucks, scooters, mopeds, and other mobile equipment not provided with protective windshields including trailers or other equipment attached to or part of the driving unit.
- (14) Bitumastics and other protective or coal tar products.
- (15) Work inside boiler fireboxes, flues, and other operations where the repairing of concrete, sheet metal, or brickwork by cutting or chipping will endanger the eyes.
- (16) Degreasing, cleaning, or dipping operations which involve the use of degreasing compounds, solvents, and preservatives.
- (17) Splicing or braiding wire.
- (18) Overhead work where there is a danger of dust chips or other material falling into the eyes.
- (19) Grounds maintenance operations involving the use of lawn mowers, weed eaters, hedge trimmers, etc.
- (20) Asbestos or Lead Abatement operations.

3. Types of Eye Protection. The type of eye/face protection to be used depends on the operation and the potential hazards involved. All eye/face PPE will comply with ANSI Z87.1-1989.

- a. The plano or prescription safety glasses with side shields are the basic eye protection required for eye hazardous areas or operations.
- b. Goggles may be substituted for safety glasses. The goggles must be appropriate to the operation (i.e. splash proof goggles when working with liquids).
- c. Operations that may generate large flying objects (concrete chips, wood knots or splinters, etc.) or chemical splashes require a face shield in addition to safety glasses or goggles.

4. Impaired Vision. Personnel with vision completely or practically missing in one eye, as determined by the medical officer, are considered as engaged in eye hazardous work regardless of their occupation or Military Occupational Specialty and will wear protective eyewear at all times while at work. Personnel will immediately inform their supervisor upon discovery of a visual deficiency. The supervisor in turn will notify the Director, Base Safety Directorate so that protective eyewear can be provided. Additionally, such personnel will not be assigned duties, or perform tasks where impaired vision or depth perception will create a hazardous condition.

5. Visual Screening. The medical officer is responsible to conduct the following eye screening tests:

- a. Newly hired civil service employees will be given a test as a part of the pre-employment physical examination.

- b. Visual screening of personnel performing duties not listed above will be accomplished on an individual basis as determined by the Director, Base Safety Directorate, who will arrange for an appointment with the medical officer.

6. Defective Vision. Defective vision, as well as other corrective eye pathology which may interfere with a civilian employee's performance of duties will be corrected at the employee's expense before employment. When these conditions are discovered after employment and determined to be non-occupationally incurred, the employee will obtain the services of a private optometrist or ophthalmologist at their own expense.

7. Referral for Refraction. Supervisors will refer civilian employees engaged in eye hazardous areas, processes and operations with visual acuity insufficient to meet the requirements of their job to the Director, Base Safety Directorate. Upon such notice, the Director, Base Safety Directorate will arrange for an eye appointment and provide the required corrective safety eyewear in accordance with references (k) and (l). Military personnel will report to their safety officer or representative for assistance.

8. Maintenance of Eyewear. Protective eyewear furnished under this program is the property of the government and will be repaired or replaced if damaged in the course of employment. However, if it is determined that the eyewear has been willfully damaged, altered, or lost through negligence, disciplinary action may be initiated.

9. Disposition of Eyewear. The disposition of eyewear as listed below will be followed in case of termination or transfer of employment:

- a. Corrective, protective eyewear prescribed for one person is not medically appropriate for reissuance to another person. Reclamation of such eyewear is not economically practical. Therefore, personnel who are retiring, resigning or otherwise separating from Navy/Marine Corps employment may keep the eyewear.

- b. If an individual transfers to another DoD activity, the cognizant safety manager will forward a copy of the prescription and fitting information to the new cognizant safety manager.

13302. TEMPORARY PROTECTIVE EYEWEAR

1. Planos, goggles, or face shields will be provided to employees by the supervisor while awaiting delivery of prescription protective eyewear.
2. Prevention of eye accidents requires ALL personnel in eye-hazardous areas to wear protective eyewear. This includes employees, supervisors, visitors, instructors, or others passing through an eye-hazardous area. To provide protection for these personnel, activities will procure a sufficient quantity of protective eyewear which afford suitable protection. Personnel wearing non-safety glasses will be provided with suitable eye protection to wear with them.
3. All personnel who are employed in an eye-hazardous area or occupation, and whose unaided vision is adequate without the aid of corrective lenses, will wear approved non-prescription safety eyewear whenever required.

13303. RESPONSIBILITIES

1. The Director, Base Safety Directorate is responsible for and has the authority to determine eye-hazardous areas, occupations, and processes which require PPE or other safeguards to protect the eyes/face and conserve sight.
2. Specific responsibilities in determining eye hazards include:
 - a. A complete survey of all activity work areas, processes, and occupations will be conducted by an industrial hygienist, safety specialist, organization's safety officer and management/supervisor.
 - b. Recommendations as to the type of protective equipment required, the personnel affected, and the nature of signs and warning posters required.
 - c. The re-evaluation of previously designated eye-hazardous areas after new processes are adopted or after modifications to existing processes have been implemented. Annual workplace inspections and re-evaluations will be performed to determine the continuing need for eye/face protection.
 - d. Eye injury record retention and review as an additional check on the identification of areas, processes, and occupations where potential eye hazards may exist.

SECTION 4. HEARING CONSERVATION PROGRAM

13401. HEARING CONSERVATION PROGRAM. The basic purpose of this program is to preserve hearing and prevent hearing loss to personnel assigned to perform work in areas of high noise intensity. The following requirements are in accordance with references (b), (c) and (s).

1. Entrance and Separation Hearing Tests. All military and civilian personnel who enter or terminate service with the Marine Corps will receive an audiogram as part of their entrance and separation physical examination.
2. Periodic Audiograms. Personnel assigned to a potentially hazardous noise environment will have an audiogram within the first three months. Guidelines promulgated by reference (s) will be used in evaluating the test results. If the guidelines are not exceeded, individuals will be retested annually or as directed by the cognizant medical authority.

3. Measurement of Environmental Noise. Unit Commanders, directors, and department heads having operations which they feel may be injurious to hearing will request the Director, Base Safety Directorate to arrange for a noise survey to determine if the area, tasks, or operation should be designated as noise hazardous.

13402. PERSONAL HEARING PROTECTIVE DEVICES

1. All personnel will wear hearing protective devices when they enter, perform a task, or work in an area where the operations generate noise levels of:

a. Greater than 84 dBA (TWA) sound level.

b. Peak sound pressure level of 140 dB or greater.

c. A combination of insert type and circumaural type hearing protective devices (double protection) will be worn in all areas where noise levels exceed 104 dBA (TWA) sound levels.

d. All personnel exposed to gunfire in a training situation or to artillery, mortar, or missile firing, under any circumstances, will wear hearing protective devices.

13403. TRAINING

1. Training is crucial to the success of the Marine Corps Hearing Conservation Program. All personnel included in this program will be informed of this and be provided with initial training in hearing conservation.

2. The training will be repeated annually as a refresher for all personnel included in the hearing conservation program.

3. The Naval Health Clinic will help provide hearing conservation training upon request.

4. The training will consist of:

a. The elements and rationale for the hearing conservation program.

b. The effects of noise on hearing.

c. The purpose of hearing protection; advantages, disadvantages, and effectiveness of various types of hearing protectors; and instructions on selection, fitting, use, and care of hearing protectors.

d. The purpose of periodic audiometric testing and an explanation of the test procedures.

e. Encouragement to use hearing protection when exposed to hazardous noise during off-duty activities.

13404. RECORD KEEPING. Record keeping will be done in accordance with reference (s) and BUMED procedures.

SECTION 5. FOOT PROTECTION PROGRAM

13501. POLICY. All military and civilian employees exposed to occupational foot hazardous operations or areas where there is a potential for foot injuries will be furnished appropriate safety footwear at the government's expense. The Director, Base Safety Directorate will designate foot hazardous areas and prescribe the type of foot protection required.

13502. RESPONSIBILITY. Employees are responsible to wear appropriate footwear when exposed to foot hazardous areas and operations. Supervisors are responsible to ensure that employees wear the appropriate footwear.

13503. FOOT-HAZARDOUS OPERATIONS. Foot-hazardous operations are those which have a high incidence of or a potential for, foot or toe injuries. These operations include but are not limited to construction, material handling, maintenance, transportation, aircraft maintenance, weapons, fuels, avionics, warehousing, flight line, and vehicle maintenance facilities.

13504. FOOT PROTECTION. Safety footwear with a built-in toe box is intended primarily to provide protection for the toes from impact and compression forces. Such footwear will conform to reference (af).

13505. REQUIREMENTS. All safety shoes will be stamped, Z41.1, by the manufacturer on the inside of the shoes. Safety shoes with synthetic material that can melt are not authorized.

13506. APPROPRIATION AND DISTRIBUTION. The following procedures apply to the issue of protective footwear for military and civilian employees.

1. Military and civilian personnel working in areas such as construction, aircraft maintenance, weapons, avionics, etc., will be provided standard stock protective footwear from operational and maintenance funds.
2. Non-appropriated fund civilian employees will be provided safety shoes. The funding and cost for required safety shoes will be non-appropriated.

13507. RECORD KEEPING AND CONTROL. Each activity will be responsible for issue and control of safety shoes.

1. Record initial issues of safety shoes in the employee's official personnel file.
2. Safety shoes determined to be unserviceable due to wear or damage will be replaced, and official personnel files correctly annotated.
3. The employee is responsible to replace safety shoes due to improper care, neglect, or loss.

SECTION 6. RESPIRATORY PROTECTION

13601. PURPOSE. To provide written requirements and guidelines for the Respiratory Protection Program at MCB Hawaii in accordance with references (b), (1) and (af).

13602. BACKGROUND. OSHA, American Conference of Governmental Industrial Hygienists (ACGIH), Navy Occupational Safety and Health program (NAVOSH), as well as consensus standards specify permissible limits for exposure to airborne concentrations of potentially hazardous dusts, fumes, mists, vapors, and gases, above which employees must not be exposed. At all times, the Director, Base Safety Directorate will use the most stringent exposure limits available and direct that, where feasible, engineering controls be implemented to reduce employee exposure to hazardous substances to below these exposure limits. Where engineering or administrative controls are not feasible, or while these controls are being instituted, employees will use appropriate respirators to protect their health. In such cases, a written Respiratory Protection Program will be established by the cognizant command and approved by the Director, Base Safety Directorate, which governs the selection, use, and maintenance of these respirators.

13603. SCOPE. This Order applies to all uses of respiratory protection equipment at MCB Hawaii, including all tenant organizations. Contractors and vendors will adhere to applicable HIOSH or OSHA requirements for respiratory protection.

13604. RESPONSIBILITIES

1. The Respiratory Protection Program Manager (RPPM) for MCB Hawaii will be a safety specialist assigned to the Base Safety Directorate. The RPPM is responsible to coordinate all aspects of the Respiratory Protection Program and has full authority to make necessary decisions to ensure the success of the program for all Base and tenant organizations. The RPPM must be properly trained before being assigned as the RPPM.
2. The RPPM will:
 - a. Use pertinent statutes and consensus standards as guides.
 - b. Approve and authorize in writing all purchases of non-standard respiratory protective equipment.
 - c. Ensure that respiratory protection recommended by the industrial hygienist is provided to personnel by their organizations.
 - d. Ask the industrial hygienist to conduct a health hazard evaluation of new or modified work operations to ensure that appropriate respirators are specified.
 - e. Ensure that central maintenance facilities are established by tenants for respirator storage issue, cleaning, and maintenance.
 - f. Ensure that personnel assigned to the respirator central maintenance facility are adequately trained.
 - g. Ensure that all respirator users and their supervisors receive annual training.
 - h. Ensure that all respirator users receive a respirator physical before being fit-tested.
 - i. Ensure that all users of negative pressure respirators are fit tested annually. Personnel working with lead, asbestos, and other highly toxic materials will be fit tested semi-annually utilizing a quantitative fit tester.
 - j. Maintain all records pertaining to respirator training, fit testing, and employee exposures.
 - k. Conduct an annual audit of the Respiratory Protection Program.
 - l. Ensure that all respirator users have a current respirator fit card.

3. All Base and tenant organizations using respirators will:
 - a. Assign a command RPPM in writing, and make this person available for training.
 - b. Set up an area for respirator issue, storage, and maintenance.
 - c. Issue respirators to qualified respirator users only. User must show current respirator fit test card as proof of qualification.
 - d. Clean, disinfect, inspect, and repair all respirators before issue.
 - e. Maintain an adequate supply of respirator replacement parts.
 - f. Publish a written Respirator Protection Program document.
4. Supervisors will:
 - a. Ensure that only trained and medically qualified personnel are assigned to tasks requiring the use of respirators.
 - b. Ensure that respirators are used in accordance with this Order.
 - c. Ensure that personnel have a current respirator fit-test card on their person before they use respirators.
 - d. Take the appropriate actions to correct deficiencies that pose a safety or health issue.
5. Supply Department will only purchase respiratory protective equipment that has been approved and authorized by the MCB Hawaii RPPM.
6. Respirator users will:
 - a. Use and maintain respirators in accordance with this instruction and the respirator manufacturer's instructions.
 - b. Immediately report worksite problems involving the use of respirators to their supervisors.
 - c. Carry a current respirator fit-test card at all times when a respirator is being used.

13605. RESPIRATOR SELECTION

1. Respirators will be selected by the MCB Hawaii RPPM in accordance with references (b), (k), and (l) or other regulations or consensus standards.
2. The industrial hygienist will specify respirators in the annual industrial hygiene evaluation and upon request by the RPPM.

13606. RESPIRATOR USE

1. Use only respiratory protective equipment authorized by the RPPM.
2. Use respirators as issued. No modifications or substitutions to equipment are permitted.
3. Respirators will be used only by the person to whom they are issued.

4. Respirators with tight-fitting face pieces will not be worn by individuals with interfering facial hair.
5. The wearing of contact lenses with a respirator will be authorized on a case-by-case basis by the MCB Hawaii or command RPPM.
6. Users will inspect respirators before donning.
7. A respirator fit-check will be performed each time a respirator is donned.
8. If, while using respiratory protection, odor or taste from the work process is detected, difficulty in breathing is encountered or other sign of leakage is present, the user will leave the area without delay. Re-entry will not be permitted until the problem has been solved by replacing cartridges, filters, adjusting respirator fit, or by other means.
9. When respirators are temporarily removed during breaks in work operations, removal will be done away from the work area in order to prevent personnel exposure and to keep the interior of the respirator face piece clean. Protect respirators from contamination before re-donning.

13607. RESPIRATOR INSPECTION

1. Inspect all respirators before and after each use.
2. Inspect respirators and Self Contained Breathing Apparatus (SCBAs) kept for emergency use monthly. Maintain written records of inspection dates and findings.

13608. RESPIRATOR CLEANING AND DISINFECTING. Clean and disinfect respirators after each use per manufacturer's specifications.

13609. STORAGE OF RESPIRATORS

1. Store clean respirators in sealed plastic bags, away from sunlight, heat, extreme cold, excessive moisture, or damaging chemicals. The storage area will be clean and sanitary.
2. Store respirators in such a way as to prevent crushing which can result in deformation of the face piece.

13610. REPAIR AND MAINTENANCE

1. Respirator assembly and repair may only be performed by trained and qualified personnel.
2. Repair respirators with the appropriate parts designated by the respirator manufacturer. Do not use parts from one manufacturer on another manufacturer's respirators (including filters and cartridges).
3. Do not attempt to replace components or to make adjustments or repairs beyond the manufacturer's recommendations.

13611. MEDICAL EXAMINATIONS

1. All respirator users will be medically evaluated by the command medical physician to ensure they can wear a respirator and do the required work without any adverse health effects.

2. These medical examinations will be conducted in accordance with references (b) and (k).
3. Users of prescription eyewear who must wear a full-face respirator will be fitted with respirator spectacles approved by the manufacturer and prescribed by an optometrist.

13612. TRAINING

1. Fit testing and training will be conducted by MCB Hawaii Base Safety Directorate (BSD) for all users of negative pressure respirators and N95 respirators in a test atmosphere to ensure proper respirator fit.
2. Perform fit testing annually after the training. Those individuals who work with or may be exposed to arsenic, acrylonitrile, lead, asbestos, or other materials require semi-annual testing.
3. Do not allow individuals with interfering facial hair to use Respiratory Protection Equipment except for positive pressure supplied air hoods where appropriate. Furthermore, remove/transfer these individuals from this work position until they can be satisfactorily fit tested and protected.
4. Perform fit testing in accordance with references (b), (k) and (l).
5. Provide a respirator fit-test card to individual users at the time of fit tests.

SECTION 7. HAND PROTECTION

13701. GENERAL REQUIREMENTS

1. Employers will select and require employees to use appropriate hand protection when employee's hands are exposed to hazards such as those from skin absorption of harmful substances, severe cuts or lacerations, severe abrasion, punctures, chemical burns, thermal burns, and harmful temperature extremes.
2. Selection. Before issuing or allowing personnel to use hand protection, supervisors will base the selection of the appropriate hand protection on an evaluation of the performance characteristics of the hand protection relative to the task(s) to be performed, conditions present, duration of use, and the hazard and potential hazards identified.

SECTION 8. ELECTRICAL PROTECTIVE EQUIPMENT

13801. GENERAL REQUIREMENTS. Specific design and performance, use, and care requirements apply to protective equipment used for isolation against electrical hazards. Persons selecting for purchase, maintaining, and using such equipment (insulating blankets, matting, covers, line hose, gloves, and sleeves made of rubber) must be familiar with these requirements per reference (b), NFPA 70E, and Unified Facilities Criteria.

OSH PROGRAM

CHAPTER 14

CONFINED SPACE ENTRY PROGRAM

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OSH PROGRAM

CHAPTER 14

CONFINED SPACE ENTRY PROGRAM

14101. DISCUSSION

1. Confined Spaces. Numerous confined spaces can be found aboard MCB Hawaii. Examples include storage tanks, pits, boilers, fuel cells, sewers, underground utility vaults, tunnels, and manholes. Hazards encountered in these spaces are often compounded by poor illumination. The definition of a confined space is a space that:

a. Is large enough and so configured that an employee can bodily enter and perform assigned work.

b. Has limited or restricted means for entry or exit.

c. Is not designed for continuous employee occupancy.

2. Permit Required Confined Space. Confined spaces with any of the following conditions meet the OSHA definition of a permit-required confined space and an entry permit must be issued before personnel may enter:

a. Lack of sufficient oxygen (less than 19.5 percent).

b. Excessive oxygen which increases the danger of fire or explosion (greater than 23.5 percent).

c. Presence of flammable or explosive atmospheres or materials.

d. Presence of toxic atmospheres or materials.

e. Physical hazards such as:

(1) Slippery surfaces.

(2) Deteriorated or unstable ladders.

(3) Machinery and electrical devices that may require an energy isolation (lock-out/tag-out) procedure, etc.

(4) Potential for engulfment from loose materials (sand, sawdust, etc.).

(5) Potential for entrapment from configuration of inwardly sloping walls, etc.

14102. POLICY. MCB Hawaii policy is that all confined spaces will be considered hazardous and entry into or work on the boundaries of such spaces is prohibited until the space has been evaluated by a qualified person to establish appropriate safety precautions. This chapter outlines the program to implement this policy in accordance with references (b), (c) and (ah).

14103. PROGRAM MANAGEMENT. The Commanding Officer, MCB Hawaii, will appoint in writing a qualified Confined Space Program Manager (CSPM) (paragraph 14105.5) who will be responsible to implement a confined space entry program per this Order. The CSPM will normally be assigned to the Base Safety Directorate. However, in the event the MCB Hawaii CSPM is not assigned to the Base Safety Directorate, he/she will have direct access to the Commanding Officer. Tenant commands will use the services of the MCB Hawaii CSPM or develop a program that is certified by the MCB Hawaii CSPM to be least as

stringent. Contractors and other non-DoD agencies will provide their own Confined Space Program that is equivalent or more stringent, and must liaison with the MCB Hawaii CSPM before commencing operations.

14104. BASIC PROGRAM ELEMENTS. The confined space entry program consists of six basic program elements.

1. Identification And Preliminary Evaluation

a. Confined Space. The CSPM, in coordination with line managers, will identify all confined spaces on the installation (as defined in paragraph 14101.1 of this Chapter) having reasonable potential for personnel entry.

b. Permit Required Confined Space. The CSPM, with the assistance of an industrial hygienist or qualified safety specialist will evaluate each confined space to determine whether it meets criteria (as defined in paragraph 14101.2) as a Permit-Required Confined Space (PRCS). The CSPM will maintain a current inventory of all PRCS aboard MCB Hawaii.

2. Prevention of Unauthorized Entry. Responsible supervisors will brief all assigned employees as to the restrictions regarding entry and use, whenever practical, physical means (locks, barrier, etc.) will be used to secure spaces under their control. In addition, each PRCS will be posted with a standard caution sign. The sign will be posted in a conspicuous location near likely entry points and contain the following information.

- a. Unauthorized entry prohibited.
- b. General nature of hazard inside (i.e. potentially hazardous atmosphere).
- c. Person to contact if entry is required.

3. Comprehensive Hazard Evaluation. Many factors must be evaluated before entry into or work in a confined space. Such evaluation will include:

a. Initial Atmospheric Testing. Before entry into a confined space containing a potentially hazardous atmosphere, test the space for oxygen content and presence of flammable/explosive or toxic constituents. Perform initial atmospheric testing outside the space (drop tests or insertion of sample probes). Perform tests for oxygen content first. Such tests will be performed by the CSPM or a trained and qualified person under the direction of the CSPM. Based on the results of such testing, the space can be described by one of the following classes.

(1) Class I Space. A Class I space contains atmospheres or conditions which are Immediately Dangerous to Life or Health (IDLH). Such conditions include:

(a) The presence of flammable gases or vapors at a concentration of ten percent (or greater) of the Lower Explosive Limit (LEL).

(b) Oxygen content less than 16.5 percent or greater than 23.5 percent.

(c) The presence of toxic agents which exceed a level from which a person could escape within 30 minutes without impairing symptoms or irreversible health effects.

(d) Any combination of these conditions.

Note: Guidance relative to concentrations of toxic agents that are IDLH are in references (b), (k), ACGIH and other consensus standards.

(2) Class II Space. A Class II space contains atmospheres or conditions which are dangerous, but not IDLH. Such conditions include:

(a) The presence of flammable atmospheres in concentrations greater than 5 percent but less than 10 percent of the LEL.

(b) Oxygen content greater than 16.5 percent but less than 19.5 percent.

(c) The presence of toxic agents at concentrations below levels which are IDLH but at or above established Permissible Exposure Limits (PEL).

(d) Any combination of these conditions.

(3) Class III Space. A Class III space contains atmospheres or conditions which are contaminated. Such conditions include:

(a) The presence of flammables or flammable atmospheres in concentrations less than 5 percent of the LEL.

(b) Oxygen content greater than 19.5 percent, but less than 23.5 percent.

(c) The presence of toxic agents at concentrations below established PEL.

(d) Any combination of such conditions.

(4) Class IV Space. A space that contains no flammable or toxic agents, has an oxygen content consistent with outside ambient conditions (20 through 21 percent), and presents little potential for generation of hazardous conditions. An entry permit is not required for this class of space.

b. Periodic and Continuous Atmospheric Testing. Many operations, due to the potential to generate hazardous conditions, require periodic or continuous monitoring as the work progresses to ensure that safe conditions are maintained. The frequency and types of testing to be conducted depend upon prevailing conditions and the nature of the operations. No single rule can be established for all operations and conditions. The CSPM will establish the frequency and type of test for periodic or continuous monitoring. Consider the following types of operations carefully for periodic or continuous monitoring:

(1) Hot work which has the potential to generate hazardous concentrations of toxic agents.

(2) Hot work in the presence of preservatives, seepage of flammables from seams or rivets, and similar operations.

(3) Applications of preservatives, paint, epoxies, and similar operations, which may generate hazardous concentrations of toxic or flammable vapors.

(4) Cleaning operations, sludge removal, and similar operations which may produce or cause release of hazardous concentrations of toxic or flammable vapors.

(5) Any other similar operations which possess the potential for producing or releasing toxic, flammable, or asphyxiating atmospheres or materials.

Note: The CSPM will ensure that appropriate instruments are available to perform required atmospheric testing. These instruments will be suitable for the task as indicated by certification from the National Institute for Occupational Safety and Health (NIOSH), Mine Safety and Health Administration (MSHA), or other nationally recognized testing authority such as Underwriters Laboratory (UL) or Factory Mutual (FM). The CSPM will ensure that such equipment is properly used, maintained, and calibrated per the manufacturer's instructions. Make functional and/or calibration checks before and after use. Maintain records of such checks for one year.

c. Other Hazard Evaluation. In addition to potentially hazardous atmospheres, other confined space hazards, such as the presence of piping, slippery surface, unstable ladders, engulfment potential, and energy sources, such as machinery and electrical devices, must also be evaluated before entry into a PRCS. The CSPM will request the assistance of a safety specialist or an industrial hygienist, when necessary, to evaluate such hazards and prescribe safety precautions.

4. Issuance of Confined Space Entry Permits. If entry into a PRCS is required, the cognizant line manager will request a permit, Appendix K, from the MCB Hawaii CSPM. The request will include a description of the space, the operation to be performed, and a list of proposed entry personnel. Based on the results of the comprehensive evaluation discussed above, the CSPM (or a qualified assistant under the direction of the CSPM) will grant the permit only if the entry/work can be performed safely. Permits will be valid for a period of time specified by the CSPM but not to exceed the time required to complete the assigned task or job, or for a maximum of one month whichever is less. If the MCB Hawaii Entry Permit form is not used, as in contractor operations, the permit will contain the information specified in paragraph 14112, including a list of personnel making the entry, and the attendants. This is to ensure that an accurate head count of personnel in the space can be made in case of an emergency to verify that all personnel have left the permit space. This list will also be used to ensure that all personnel entering the permit space are properly trained. The permit will be distributed as follows:

- a. Post one copy at the primary entrance to the space.
- b. Post one copy at all other entry points which are open and readily accessible to personnel.
- c. Provide one copy to the line manager requesting the permit.
- d. The CSPM will retain one copy for one year after its expiration date. If the CSPM is not assigned to the Base Safety Directorate, one copy will be provided to that office.

5. Training and Qualifications

a. The CSPM will have successfully completed course number A-493-0030, Confined Space Safety, conducted by the Naval Safety School or equivalent. Equivalent training must be approved by the Director, Base Safety Directorate. Maintain verification of such training with the Commanding Officer's written appointment to the position.

Note: Persons qualified as Navy Maritime/Ashore Gas Free Engineers or Technicians per the provisions of reference (k) may serve as CSPMs or assistants, respectively.

b. The CSPM will train and certify qualified assistants. Training will include the proper use, maintenance, and calibration/functional check of test equipment. Qualified assistants will receive at least eight hours of initial classroom instruction followed by eight hours of on-the-job training (OJT). The CSPM will maintain records of such training and certification of competency for as long as such personnel are involved in the program. A minimum of two hours annual refresher training will also be provided. All assistants will be recertified by the CSPM annually.

c. The CSPM will ensure that attendants, when required, are instructed as to their duties (see Section 14105 of this Chapter). Issuance of such instructions will be noted on the permit.

d. The CSPM will ensure that rescue team personnel are aware of potential confined space entry hazards, rescue duties, and the necessary precautions. The training will include the use of PPE necessary for making rescues. Members of the rescue team will be certified in basic first aid and cardiopulmonary resuscitation (CPR) skills. Such training will be demonstrated during at least one practice rescue per calendar year. Records of such rehearsals and critiques will be maintained by the CSPM for one year.

e. The responsible manager/supervisor will ensure that all authorized entrants are trained on the skills necessary for the safe performance of assigned duties including the specific hazards likely to be encountered and appropriate safety measures. The CSPM will assist in such training, provide training before the employee is first assigned duties; whenever there is a change in operation that presents a hazard about which employee has not been previously trained; and whenever the supervisor believes there have been deviations from entry procedures or there is inadequate knowledge of procedures. The responsible entry supervisor will certify on the permit that proposed entrants are properly trained including their duties under this instruction.

f. Note control of energy sources, electrical and mechanical, on the confined space permit (this will also include any valves or pipes presenting a potential hazard).

g. Personnel assigned duties which require them to enter into and work inside of confined spaces, fuel cells, and fuel tanks will have such duties formally included in their position descriptions and official personnel file. They will also be required to receive a pre-placement physical examination. Based upon the type of work to be performed and the potentially hazardous exposure, an annual examination will be given if determined necessary by industrial hygiene evaluations. A termination examination will be given upon termination of employment or reassignment to other duties.

6. Program Evaluation. The Commanding Officer will require an evaluation of the Confined Space Program following any mishap or other incident, or at least annually, to ensure that all aspects of the program are being properly conducted.

14105. REQUIREMENTS FOR CONFINED SPACE ENTRY AND WORK. As stated above, the first step toward the issuance of a permit for confined space entry and work is a thorough evaluation of the potential hazards that may be encountered and the establishment of necessary control measures. In addition to the hazard evaluation, the following requirements and restrictions also apply.

1. Authorized Entry Personnel. Only personnel authorized by the responsible entry supervisor may enter a PRCS. The responsible entry supervisor will ensure that such personnel are aware of the hazards likely to be encountered and the appropriate safety measures initiated. The responsible entry supervisor will also ensure that such personnel are medically fit for such activity; for example, if respiratory protection is required, the requirements of Chapter 13 of this Order apply.

2. Attendants. Attendants are mandatory for all entries into permitted spaces. Attendants will be equipped with communications equipment to ensure prompt emergency response.

a. Attendants will remain outside the main opening to the space to monitor the condition of those inside and seek assistance in case of an emergency. Attendants will also warn those inside of any observed danger that may arise. Accordingly, attendants must maintain constant visual or verbal communication with those inside.

b. Pre-instruct attendants on proper notification procedures in case of an emergency and clarify that the attendant may attempt non-entry rescues only until designated rescue personnel have arrived.

c. Attendants will NOT be assigned additional duties.

d. Attendants must be aware of the possible hazards during entry, be familiar with possible behavioral effects of hazard exposure, continuously maintain a count of entrants, and must monitor activities inside and outside the space.

e. Attendants will order evacuation of the space immediately if any situation arises that makes it impossible to effectively or safely perform all required duties, or if any prohibited condition, behavioral effects of hazardous exposure, or hazardous situation outside the space that could endanger entrants are detected.

f. Attendants will warn unauthorized personnel to stay away from the permitted space, advise any unauthorized personnel who have entered a space to leave immediately, and inform authorized entrants and the cognizant supervisors if unauthorized persons have entered the space.

3. Personal Protective Clothing and Equipment. The CSEPM, in coordination with a safety specialist or industrial hygienist, will determine the requirements for appropriate personal protective clothing and equipment based on the type of confined space operations and exposures involved. See Chapter 13 for specific requirements. The required clothing and equipment will be listed on the entry permit. The responsible supervisor will ensure that all confined space entry personnel are trained in the proper use of required personal protective clothing and equipment.

4. Preparation of Spaces

a. Protection from External Hazards. Take measures needed to isolate the space from unwanted forms of energy and to prevent accidental releases of potentially hazardous material (HM) into occupied spaces. Such measures include lock out/tag out of electrical/mechanical devices; blanking, blinding, bleeding, removal or misalignment of pipe sections; etc. Take other action (e.g., place barriers around confined spaces) to ensure that workers inside confined spaces are protected from vehicular or pedestrian traffic, dropped objects, etc. These measures must also prevent bystanders from falling into spaces such as open manholes. At night, provide adequate lighting in and around opening to a confined space. The electrical lighting or other electrical equipment in use will meet the requirements of Class I, Division 1 explosion-proof equipment if a flammable atmosphere may be present.

b. Ventilation. When so indicated by atmospheric testing (Class I or II space) and/or the nature of operations to be conducted within the space, properly ventilate all confined spaces before entry and during the operation. Procedures and approved equipment for ventilation are in reference (v).

c. Space Cleaning. It is often necessary to clean the interior of a confined space before certain work can be accomplished. Agents used during the cleaning process may be hazardous. Also, cleaning may disturb residues and sludge's in some spaces, releasing toxic or flammable gases. Therefore, follow procedures in reference (v) during all confined space cleaning operations. Specific instructions for cleaning fuel storage tanks are in references (w) and (ai).

d. Inerting, Pressing-up, and Steam Blanketing. When it is necessary to perform hot work on the exterior boundary of a confined space containing a potentially explosive or flammable atmosphere or material, ventilate the space to eliminate the hazard. When ventilation is impractical or does not ensure safety, the space will be inerted, pressed-up, or steam blanketed. Observe the restrictions and precautions in reference (v) when these techniques are used to achieve safe conditions within the space.

Note: A space that has been inerted, pressed-up, or steam blanketed is under IDLH conditions and personnel entry is not permitted.

14106. SPECIFIC ENTRY AND WORK RESTRICTIONS FOR CLASS I AND CLASS II SPACES

1. Class I Spaces. Entry into and work in or on Class I spaces will be not permitted under normal operations and is authorized only under the following circumstances.

a. Entry into Class I spaces is authorized only in cases of rescue efforts, life threatening or other extreme emergencies. In the event of such emergencies, equip personnel entering the space with:

(1) A NIOSH or MSHA approved pressure-demand self-contained breathing apparatus (SCBA) or air-line respirator with escape bottle for entry into IDLH atmospheres.

- (2) A harness suitable to permit extraction of the person from the space.
- (3) A life line securely attached to the harness.
- (4) Other PPE suitable to the conditions and exposure.

b. Station emergency rescue personnel, equipped with the above equipment and any additional equipment which may be necessary to effect a rescue, immediately outside the entry to the confined or enclosed space. Establish and maintain communications between the person entering the space and attendant personnel outside the space. Where flammable or explosive vapors, gases, or materials are present, use only approved explosion-proof, spark-proof, or intrinsically safe equipment and prohibit all other potential ignition sources.

c. Cold work may be performed on the external areas of a Class I space from outside the space, if the work performed does not generate heat or other ignition sources which may cause ignition of atmospheres within the space.

d. Hot work may be performed on the external areas of a Class I space when the atmosphere inside the space does not contain a flammable, explosive, or oxygen enriched atmosphere. A Class I space classification, in this case, would be based on oxygen depletion or the presence of toxic agents and would include spaces which are inerted, pressed up, or a combination thereof.

2. Class II Spaces. Flammables, toxic agents, or deviations of oxygen content within space may be due to the materials and conditions within the space. Identify the cause or source of the contamination and remove to the maximum degree possible by cleaning, ventilating, or other treatment before entry or work. Station an attendant immediately outside the entrance to the space. Where operations are conducted within the space, such as spray finishing, welding, cutting or solvent cleaning, observe the following:

a. Where toxic or flammable materials are present, or may be introduced into the space by the work procedure, provide general dilution or local exhaust ventilation, or combination thereof, per references (t) and (v). Do not blow air into Class II spaces.

b. Where toxic materials are present, or may be introduced into the space, provide personnel within the space with NIOSH or MSHA approved respiratory protective equipment suitable for the exposure.

c. Where flammable gases or vapors are present, or may be introduced into the space, use approved explosion-proof, spark-proof or intrinsically safe equipment and closely control all potential ignition sources.

14107. SPECIAL PRECAUTIONS FOR SPECIFIC OPERATIONS

1. Hot Work. Hot Work includes all flame heating, welding, torch cutting, brazing, carbon arc gouging, or any work which produces heat of 400° F or more; or, in the presence of flammables or flammable atmospheres, use of ignition sources such as spark or arc producing tools or equipment, static discharges, friction, impact, open flames or embers, and non-explosion-proof lights, fixtures, motors, or equipment. References (v), (ah) and (ai), apply to all hot work performed in confined spaces, and hot work performed on closed structures or containers such as pipes, drums, ducts, tubes, jacketed vessels, and similar items.

2. Aircraft Fuel Cell Repair. Safety precautions relative to maintenance and repair of aircraft fuel cells which involve entry into or work on confined spaces are in reference (u).

14108. EMERGENCY RESCUE PROCEDURES. The CSPM, in coordination with cognizant line managers, will prepare a written emergency plan to cover confined space entries under their control. Emergency and rescue procedures, in order to be most effective, must be planned consistent with the nature of the operations and the conditions within the confined space. Rescue plans and procedures will incorporate the following requirements:

1. Establish an emergency rescue control point at a location suitable to supply emergency rescue assistance within a reasonable period of time. Evaluate the location depending upon the nature and conditions of the operation and the space. In some cases, such as emergency entries into spaces which are IDLH, it may be necessary to locate the control point immediately adjacent to the space. In other cases, a centrally located control point may serve a wide area involving multiple confined spaces. Fire department and medical department facilities may serve as rescue control points.
2. Man emergency rescue control points with an adequate number of trained and qualified personnel to enable rescue of personnel from confined spaces.
3. Equip rescue personnel entering an IDLH or unknown space with a NIOSH or MSHA approved pressure-demand SCBA or air-line respirator with escape bottle, harness and lifeline (where feasible), and any other PPE applicable to the conditions.
4. Instruct attendant personnel that no rescue attempt involving entry will be made until the rescue control point has been notified and assistance has arrived. Make rescue efforts using the lifeline (where used) until help arrives.
5. Instruct all personnel involved in confined space entry or work in proper procedures to follow during rescue efforts, including the location of the rescue control point and the means to notify the control in case of an emergency.
6. Ensure that medical services and treatment are available for personnel overcome or injured in confined space incidents. Incorporate location of medical facilities and means of communication into confined space emergency and rescue plans.

14109. CONTRACTOR OPERATIONS. Where contractors are performing work at MCB Hawaii installations, this Order applies. In addition, the following provisions will be observed:

1. The contractor will provide a competent person per references (b) and (c), and as recommended by the NIOSH Criteria Document for Confined Spaces or reference (ak), or State OSH requirements, as applicable.
2. The appropriate laws and regulations make no provision for Marine Corps personnel to issue permits for contractor operations. Performance of such functions may involve assumption of liability by the Marine Corps in the event of a mishap. Marine Corps personnel will not certify spaces or issue confined space entry permits for contractor operations or personnel, except where failure to do so would create an extreme emergency and would endanger personnel and property, and may, therefore, cause even greater potential liability. Such cases will be authorized by the Commanding Officer and will be personally conducted and supervised by the CSPM, except where the nature of the emergency is so extreme that delays created by seeking the Commanding Officer's approval or services of the CSPM would create a greater danger.
3. Where MCB Hawaii personnel and contractor personnel are to occupy the same space at the same time, the MCB Hawaii CSPM and the appropriate contractor representative will issue separate permits and the contractor will be informed of the MCB Hawaii findings. However, the contractor will be informed by the contracting officer or ROICC that the contractor retains legal obligation for the safety of contractor personnel.

Note: MCB Hawaii personnel cannot make an entry or perform hot work based upon a National Fire Protection Association (NFPA) Certified Marine Chemist or competent person certification written for contractor operations.

4. In all cases involving contractor operations, the contracting officer will inform the appropriate contractor that the contractor's confined space entry personnel must be adequately qualified and that all operations are to be conducted under all requirements, since MCB Hawaii personnel, equipment, and facilities may also be at risk.

14110. RESPONSIBILITIES

1. Commanding Officer. The Commanding Officer is responsible to establish, conduct, and evaluate a comprehensive confined space entry program which meets the intent and specific requirements of this Order. To help fulfill these responsibilities, the Commanding Officer will appoint, in writing, a qualified CSPM.

2. Confined Space Program Manager. The CSPM is responsible to implement the activity Confined Space program consistent with this Order. If support is needed, the CSPM will train assistants to perform specific tasks.

3. Commanders/Directors/Officers in Charge (OICs)/Department Heads. Commanders, OICs, directors, and department heads will ensure that:

a. Confined spaces under their control are identified and properly evaluated by the CSPM or a qualified assistant under the direction of the CSPM, before commencing of operations within the space.

b. The requirements of this Order are fully met.

4. Supervisory Personnel. Supervisors will be familiar with this Order as it relates to personnel or operations under their supervisory control. They will act positively to eliminate any potential hazards control and will:

a. Ensure that all employees under their immediate supervision are aware of the hazards associated with confined spaces and the precautions necessary to control such hazards.

b. Strictly enforce observance of the safety and health requirements of this Order and the specific instructions issued by the CSPM (or the qualified assistant under the direction of the CSPM) on entry permits.

c. Promptly report to cognizant management and the MCB Hawaii CSPM any unsafe conditions or procedures and, where warranted by the severity of such conditions, cease all operations until corrective action has been completed.

d. Prohibit unauthorized entry into confined spaces under their control.

5. Entry Supervisors. The supervisor of the employee(s) authorized entry into a PRCS, as listed on the permit, is responsible to:

a. Know the hazards that may be faced during entry.

b. Verify, by checking that the appropriate entries have been made on the permit, that all tests specified by the permits have been conducted and that all procedures and equipment specified by the permit are in place before endorsing the permit and allowing entry to begin.

Note: The supervisor must check to see that the atmosphere was tested before entry and that the gas detection equipment specified on the permit is operable and calibrated.

- c. Terminate the entry and cancel the permit when required.
- d. Verify that rescue services are available and that the means to summon them are operable.
- e. Remove unauthorized individuals who enter or attempt to enter the permit space during operations.
- f. Determine that entry operations remain consistent with terms of the entry permit and that acceptable entry conditions are maintained.
- g. Sign the permit before personnel entry to ensure that he/she is aware of the entry requirements. Each relieving entry supervisor will initial the permit to acknowledge that they understand the entry requirements until the permit expires.

6. Operating Personnel. All persons engaged in confined or enclosed space entry or work are responsible to fully understand and strictly observe the safety standards, regulations and procedures, and specific instructions from the CSPM on entry permits. Furthermore, each person will:

- a. Report to their immediate supervisor any condition, procedure, or equipment that is considered unsafe.
- b. Warn others believed to be endangered by failure to observe the proper procedures or precautions.
- c. Report to their supervisor any injury or evidence of impaired health occurring in the course of work or duty, or which may affect the safe performance of duties.
- d. When entering a PRCS:
 - (1) Properly use all required protective and other equipment.
 - (2) Communicate with the attendant to enable the attendant to monitor the entrants and to enable the attendant to alert entrants of the need to evacuate as required.
 - (3) Alert the attendant whenever a warning sign or symptom of exposure to a dangerous situation is recognized, or if a prohibited situation is detected.
 - (4) Exit from the permitted space as quickly as possible whenever an order to evacuate is given by the attendant or supervisor, any warning sign or symptom of exposure to a dangerous situation is recognized, a prohibited condition is detected, or an evacuation alarm is activated.

7. Safety, Occupational Health, and Fire Protection Managers. MCB Hawaii and tenant activity safety officers, occupational health, and fire protection personnel will coordinate their respective programs with the MCB Hawaii CSPM and help evaluate and control confined space hazards.

14111. CONFINED SPACE ENTRY PERMIT. A special permit is required for entry into permit-required confined spaces. The permit will contain the following:

- 1. Description and location of spaces to be entered.
- 2. Purpose of entry.
- 3. Authorized entry personnel.
- 4. Authorized attendants.

5. Pre-entry atmospheric test data:
 - a. Time and date of test.
 - b. Test results.
 - c. Person conducting test.
 - d. Instruments used and calibration/function check dates.
6. Follow-up test requirements.
7. Other required safety precautions:
 - a. Personal protective clothing/equipment.
 - b. Lock-out/tag-out requirements.
 - c. Ventilation or other space preparation requirements.
 - d. The method of communication to be used by the personnel making entry into the permitted space.
8. Emergency instructions and required emergency/rescue equipment.
9. Date of permit and duration and authorized duration.
10. Expiration date (and time) of permit.
11. Signature of CSPM (or qualified assistant).
12. Signature of entry supervisor.

Note: This signature is an acknowledgment that requirements have been met and entrants/attendants have been trained.

OSH PROGRAM

APPENDIX K

CONFINED SPACES ENTRY PERMIT

Marine Corps Base Hawaii
Base Safety Directorate
257-1830/1286

LOCATION OF CONFINED SPACE:	DATE/TIME:
PURPOSE OF ENTRY:	DURATION:
AUTHORIZED BY:	EXPIRES ON:
ATTENDANT(S):	

AUTHORIZED ENTRANTS (LIST OTHER ON BACK OF FORM)

MEASURE FOR ISOLATING & EQUIPMENT	YES	NO	MEASURE FOR ISOLATING & EQUIPMENT	YES	NO
LOCK OUT-OR-ENERGIZE-TRY-OUT EQUIPMENT			SELF-CONTAINED BREATHING APPARATUS (SCBA)		
LINE(S) BROKEN-CAPPED-BLANKED			AIR-LINE RESPIRATOR W/EMERGENCY ESCAPE CAPABILITY		
PURGE-FLUSH AND VENT			AIR-PURIFYING RESPIRATORS AND CARTRIDGES		
VENTILATION			RESUSCITATOR/INHALER		
SECURE AREA (POST AND FLAG)			COMMUNICATIONS EQUIPMENT		
FULL BODY HARNESS W*D* RING			PROTECTIVE CLOTHING		
TRIPOD EMERGENCY ESCAPE UNIT			HOT WORK PERMIT REQUIRED		
LIFELINES			LIGHTING (EXPLOSION-PROOF)		
FIRE EXTINGUISHERS					

ATMOSPHERE MONITORING

ACCEPTABLE ENTRY CONDITIONS (CIRCLE APPROPRIATE LEVEL)					DATE							
TEST TO BE TAKEN	YES	NO	TLV	PRL	TIME							
OXYGEN				19.5-23.5%	1	2	3	4	5	6	7	8
COMBUSTIBLE				BELOW 10% LEL								
CARSON MONOXIDE			0-25 PPM	0-50 PPM								
HYDROGEN SULFIDE			0-10 PPM	0-10 PPM								
HYDROGEN CIANIDE			0-10 PPM	0-10 PPM								
SULFUR DIOXIDE			0-2 PPM	0-5 PPM								
AMMONIA			0-25 PPM	0-50 PPM								

INDIVIDUAL CONDUCTING TEST (NAME) _____
ANY QUESTIONS PERTAINING TO TEST REQUIREMENTS. CONTACT _____

INSTRUMENTS USED	NAME	TYPE	IDENT NO.

STANDEY PERSON(S)	
YES	
NO	

FOR RESCUE & EMERGENCY SERVICES CALL _____
ENTRY SUPERVISOR AUTHORIZING ALL ABOVE CONDITIONS SATISFIED _____
LEL - LOWER EXPLOSIVE LIMIT PPM - PARTS-PER-MILLION
* AS LISTED IN 1992-93 THRESHOLD LIMIT VALUES PUBLISHED BY AMERICAN CONFERENCE OF GOVERNMENTAL INDUSTRIAL HYGIENISTS
** PERMISSIBLE EXPOSURE LIMITS AS LISTED IN OSHA 29 CFR 1910.1000.

ATTN: This document is not a permit. This is a check in sheet to ensure proper access has been granted before a worker enters a Confined Space. The document should be filled out, signed, and handed to the BCO when key is picked up.

Confined Space Check-in Sheet

Name _____ Date _____
Company Name _____
Contractor Phone Number _____
Emergency Contact Phone Number _____

Enter the names of workers entering the confined spaces. (Any person entering a confined space should have a valid confined space entry certification before entering)

Name	Contact Info
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

Please list the confined spaces to be entered on this date.

Confined Space Number	Location	Approximate time of entry
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

Please verify by initialing the box that you have checked in to each location, on the day of entry, before obtaining Confined Space key from the BCO.

MCBH PMO (Bld 1096) _____
MCBH Base Safety (Bld 279) _____
Base Electrician (Bld 201) (Only when entering Electric MH's) _____
Base Communications Office (Bld 268) _____

By signing below, the Contractor understands Confined Space Entry Permit must be filled out while onsite and signed and handed to Base Safety on the same day. If work has exceeded Base Safety Office Hours, the form can be faxed to (808) 257-1619.

Contractors Signature _____ Date _____ Key Number _____