TITLE:		нот	WORK OPERATION	NS				
ORIGINALLY EFFECTIVE: 04-19-99	REVISION N	NO.: 6	REVISION EFFECTIVE:	10-06-2010	PAGE	1	OF	12
OPERATING INSTRUCTION	ON TO:	RPM4 P	ersonnel		5(00-	01	
LOCKHEED MARTIN AERONAUTICS COMPANIES FACILITY PROTECTION	IY FRO	M: R.D. Fre	eeman DEPT N	O.: RPM4	INSTR	RUCTIO	ON NC).:

I. PURPOSE:

To establish procedures for issuing temporary "Hot Work Permits" for any operation which produces heat or sparks, or involves an open flame. This includes, but is not limited to B-B-Q Grills, brazing, cutting (with torch or saw), grinding, soldering, thawing pipes, torch applied roofing, roofing kettles and welding.

II. DEFINITIONS:

- A. **Hot Work Permit**: A document, issued daily, by a fire fighter for a time span not to exceed one continuous shift of a contractor or LM Aero Marietta welder or Fire Department whichever ends first.
- B. **Hot Work Certificate** A document issued by the Fire Prevention Coordinator, Fire Protection Engineer or Assistant Fire Chief and signed by ESH, the Facilities point of contact and the responsible person for the welder for a period not to exceed 30 calendar days. A fire fighter shall inspect the site at least once each day.
- C. **Grinding** Any operation using an abrasive wheel to cut metal or concrete that may contain metal reinforcing and will create sparks.
- D. **Welding** Any operation using heat to join metal parts. The heat source may be electric or an oxygen-acetylene mix.
- E. **Cutting** Any operation that uses a torch, saw, abrasive wheel or other method to cut metal that also causes sparks.
- F. **Open Flame** Any operation not included in WELDING or CUTTING that uses an open flame to join or separate metal. Examples soldering, sweating pipe
- G. Burning Any operation that destroys material by fire. Examples charcoal/LP gas grill, burn house fires

III. REQUIREMENTS

A. Hot Work Permit:

1. General:

- a. Hot Work operations can introduce potential, uncontrolled ignition sources to the work area. In the presence of combustible and/or flammable materials, a fire too often results when proper precautions are not taken.
- b. Hot Work Permits are required for all welding activities outside permanently designated weld shops or areas where a Hot Work Certificate has been issued.
- c. Every Hot Work operation must be weighed carefully for <u>need</u> and <u>risk</u>. First, consider if the Hot Work can be avoided. Is there a safer way? Can work be done with a handsaw, pipe cutter, or other such equipment? Would nuts and bolts suffice instead of a weld? If the answer to these questions is "no", can all combustibles and flammables be removed from the work area, or if practical can the work itself be moved?
- d. Every hot work operation shall:
 - have a fire watch in addition to the welder

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- ii. be inspected by the LM Aero Marietta welder/contractor after the job has been completed
- iii. be inspected by a fire fighter approximately 5 minutes after the job has been completed

"Torch cutting and welding shall not be permitted as a means of modifying or repairing sprinkler systems." NFPA 13 (2002 Edition), ¶6.5.2.12

B. Hot Work Permit Specifics:

1. First Aid Fire Extinguishers/Fixed Protection

- a. Fire Fighter will make sure an adequate number of the proper type of fire extinguisher(s), and a garden hose, bucket of water or water fire extinguisher, are available, accessible, and provided by the welder. Extinguishers mounted on building columns, walls, etc., are to be considered "back up" and may be removed from their location ONLY if needed in an emergency. The contractor/LM Aero Marietta welder shall provide adequate portable fire extinguishers for the job.
- b. Fire Fighter will ensure that personnel performing work know and understand how to use the portable fire extinguishers on the job.
- c. Ducts and HVAC systems shall be isolated or adequately protected from sources that might carry sparks or slag to distant combustibles.

Hot work shall not be permitted in the following areas: ...In sprinklered buildings where sprinklers are impaired ... NFPA 51B (2003 Edition), ¶5.2

2. Telephone and Fire Alarm Boxes:

a. Fire Fighter will ensure personnel performing work know the location of nearest fire alarm box and/or telephone, and number to call.

3. Conditions Within Work Area:

- a. Thirty-five (35) ft. radius
 - i. Fire Fighter shall ensure trash, and excessive dust, lint, and oily deposits are removed.
 - ii. Floor shall be swept if condition warrants.
 - iii. If bulk storage of combustibles cannot be removed, it shall be protected by covering with fire resistant tarpaulins and/or metal shields.

Note: Protection must be adequate to ensure no sparks and/or slag can get to flammable or combustible storage.

b. Fifty (50) ft. radius:

- i. Fire Fighter shall ensure no painting is allowed with 50 ft. of Hot Work area.
- ii. Fire Fighter shall ensure no flammable liquid or gas containers are located within 50 ft. of the Hot Work area.

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iii. Fire Fighter shall ensure no welding will occur within 50' of aircraft.

4. Walls and Overhead Work:

- a. Walls and/or ceiling must be of non-combustible construction and without combustible covering or insulation. If not, they will be properly protected.
- b. Combustibles on the other side of all walls, where heat transfer could be a possibility, must be moved to minimum of 3 ft. from wall.
- c. Fire resistant tarpaulins will be suspended beneath work when deemed necessary by Fire Protection.
- Barricades will be in place to prevent pedestrian and/or vehicle traffic from moving under overhead work.

5. Hot Work in Enclosed/Confined Spaces:

- a. If work is in a "confined space", then a "Confined Space Permit" must be completed before a "Hot Work Permit" can be issued.
- b. Area within confined and/or enclosed space must be free of all flammables and/or combustibles.
- c. Containers and/or tanks shall be purged of flammable liquids/vapors and/or chemicals and must not exceed 10 percent of the LEL.

6. Special Precautions:

- a. Hot work within 20 ft. of the "B Wall" shall require extraordinary precautions and a specific permit due to the construction of the wall.
 - i. if a contractor is doing the work, the contractor shall be briefed on the condition of the wall and its hazards
 - ii. blankets shall be used to cover the wall within 20 ft, horizontally of and to the floor below the operation
 - iii. a charged water hose shall be available to the welder and the standby
- b. Operating tar kettles shall have, within 25 ft of the kettle:
 - i. at least, two (2) portable fire extinguishers with a rating of at least 20 B:C
 - one (1) 2½ gallon pressurized water portable fire extinguisher, 5 gallon bucket of water or a charged garden hose
 - iii. at least one knowledgeable operator attending the kettle from the time it is lit until it has cooled down
 - iv. operating tar kettles shall not be within 10 ft of any point or route of egress from any area
- c. Hot work permit issuance in hangars with aircrafts:
 - i. Turn off and tag out RMT 4000 units using the valve impairment process
 - ii. Ensure that any and all hot work is being performed at least **50 feet** from the closest point of an aircraft

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iii. NO hot work is permitted in hangars containing a DEFUELED aircraft

7. Procedures:

- a. Permits may be issued for the maximum of one working shift of the department and/or the normal shift of the contractor, performing Hot Work.
- b. **8, 10, or 12 hr Permit -** The Fire Prevention Coordinator who issues the permit shall inspect the work site every 2 hrs to insure compliance.
- c. 24 hr Permit The Fire Prevention Coordinator who issues the permit shall inspect the work site every 6 hrs to insure compliance unless otherwise specified.
- d. Fire Prevention Coordinator shall insure that all applicable boxes are checked pertaining to the "Type of Operation" being conducted.
- e. Fire Prevention Coordinator shall insure that the contractor or LM employee signs the permit and all applicable check lists are completed properly.
- f. The Permit shall be posted in a highly visible location at the job site and left there until it is retrieved by a fire fighter. The location where the permit is posted shall be entered before the permit is separated from the copy to ensure rapid retrieval of the permit.
- g. Personnel performing Hot Work shall be instructed to call the Emergency Services Dispatcher (ESD) upon completion of work at 4-3970/3928 or 4-3244.
- h. The Emergency Services Dispatcher will dispatch a Fire Fighter to make a final inspection of the Hot Work area, between 30 minutes and 1 hour after the job has been completed.
- All pertinent information will be entered into the Hot Work Data Entry Screen on the Fire Protection Desk Blotter by the Emergency Services Dispatcher and the applicable Station Captain.
- j. If Fire Protection supervision deems the "Hot Work" area is critical and requires a standby, the area will be re-checked 30 minutes and 1 hour after completion of the standby.
- k. Retrieve the copy of the Permit and return it to the Assistant Fire Chief/Captain signed by the fire fighter on the line "Fire fighter follow up:"
- I. Additional checks will be made as determined by Fire Protection supervision.
- m. Check area for hot spots.

NOTE: If, during the follow-up inspection, the fire fighter notices a condition which does not appear to be within requirements, the assistant fire chief on duty shall be contacted by the firefighter to conduct an evaluation and or work shut down.

C. Assistant Fire Chief/Captain

- Review the completed Hot Work Permit, sign the checklist and post the Original on the Hot Work Permits board
- Clarify any items on which the Assistant Fire Chief/Captain is not clear so the location and work being performed is fully understood (Initial all changes to the original.)
- 3. Ensure a fire fighter is dispatched within 5 minutes of the expiration of the permit **or** receiving a call that the job has been completed

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- 4. Should the contractor/LM Aero Marietta welder habitually not call (more than two consecutive times) upon completing the work, the Captain, shall notify the Assistant Fire Chief who shall make the decision whether or not deny a permit the next time. The Assistant Fire Chief shall advise Fire Prevention by e-mail of the decision to not to issue a permit to the offending party until a meeting has been held with Fire Prevention.
- 5. Assistant Fire Chief/Captain shall sign Hot Work Permit to indicate job closure and follow up has been properly executed. Include time and date in the endorsement. (Use the space "Received by Fire Prevention Coordinator)
- 6. Match the returned and signed Copy with the Original on the Hot Works Permit board, staple them together, original on top, with one staple in the upper left hand corner and place them in the Fire Prevention Coordinator's box
- 7. Ensure the completed permits from both campuses are submitted to the Fire Prevention Coordinator the next morning to be recorded.

D. HOT WORK CERTIFICATE:

- Issued only at the request of a LM Aero Marietta Facilities Project Manager with the concurrence of Fire Protection, Safety and the Facilities Project Manager as evidenced by signatures at the bottom each Certificate
- 2. Specifies by identifying recognizable landmarks or building columns, the area within which the Certificate grants control of Hot Work to the Certificate Holder

3. Certificate Holder

- a. General Contractors who will be in direct control of a specific area for an extended time to facilitate the progress of the project
- b. LM Aero Marietta welding supervision when operations will be confined to a specific area for an extended period to facilitate the progress of the project

4. Authorizes the Certificate Holder to oversee the operations within the area specified by

- a. issuing permits of his own design
- b. direct oversight of the operation(s)
- c. other effective means to prevent fire

5. Requires the Certificate Holder to post the certificate in a central location and to comply:

- a. with LM Aero Marietta rules (Fire Protection Standards Section 10) and
- b. NFPA 51B and
- c. OSHA 1926 Subpart J and
- d. OSHA 1910 Subpart Q and
- e. notify Fire Department at the end of each work day when all hot work operations have ended

6. Requires the Fire Department to

- a. post a copy of the certificate in the Captains' office at the applicable station and
- b. inspect the area at least once each day (Note the inspection in the daily pass on.) and

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- c. inspect the area about 60 minutes after the end of the construction shift to verify there are no hot spots **and**
- d. report all deficiencies noted to the Assistant Fire Chief

7. Requires the Facilities Project Manager

- a. to oversee the operation and ensure compliance with the conditions set forth in the certificate and LM Aero Marietta rules and
- b. to ensure corrective action is taken in a timely manner to correct deficiencies noted

8. Requires Fire Protection Management/Staff to

- a. initiate corrective action in a timely manner and
- b. notify the Facilities Project Manager of all deficiencies and
- c. rescind the Certificate if conditions warrant

Reginald D. Freeman Manager Fire Protection

FORMS

HOT WORK PERMIT (8273)

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REFERENCE DOCUMENTS

OSHA 29CFR1910 Subpart Q, Welding, Cutting, and Brazing

http://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=STANDARDS&p_id=10133

OSHA 29CFR1926 Subpart J, Welding and Cutting

http://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=STANDARDS&p_id=10914

AeroCode AC-1518, HOT WORK http://cml.lmaero.lmco.com/release/cgi-bin/aerorelease?75938

NFPA 1 (Current Edition) Fire Prevention Code

NFPA 13 (Current Edition) Standard for the Installation of Sprinkler Systems

NFPA 51B (Current Edition) Standard for Fire Prevention During Welding, Cutting, and Other Hot Work

NFPA 241 (Current Edition) Standard for Safeguarding Construction, Alteration, and Demolition Operations

LM Aero - Marietta Fire Protection Standards, Section 10 Hot Work Policy and Procedures

LOCKHEED MARTIN AERONAUTICS COMPA		FROM:	R.D. Fre	eman	DEPT NO.:	RPM4	INSTE	RUCT	ION NO) .:
FACILITY PROTECTION OPERATING INSTRUCTION		TO:	RPM4 P	ersonnel			5	00	-01	
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HOT WORK CHECKLIST		
Firefighter Name:		
Permit Number:		

HOT WORK PERMIT ISSUANCE

Adequate fire extinguishers of the proper type, including water are readily available and accessible.

"Hot Work" personnel have been trained on how to use extinguisher(s).

Available sprinklers in area are in service.

Identify nearest fire alarm box and/or telephone.

Have flammable liquids and gases been removed for a distance of at least 50 feet and there is no container leakage or open bungs and/or lid?

Have all combustible materials been removed for a distance of at least 35 feet?

Are all bulk storage or combustible materials that can't be moved, protected by fire resistant tarpaulins or sheet metal?

Wall and floor openings covered within 35 feet of the work area.

All flammable painting and cleaning operations within 50 feet of work area stopped.

If work is near or on a combustible wall, is wall adequately protected?

For overhead work, is there a requirement for fire resistant tarpaulins suspended beneath work area?

For overhead work, are ropes and/or barricades in place to prevent pedestrian or vehicle traffic moving under work area?

Ensure shielding is available to prevent eye injury.

If in a confined space, has a "Confined Space Permit" been properly completed?

Note the location of the Hot Work Permit on the form in the space provided before separating copy from original.

LOCKHEED MARTIN AERONAUTICS COMPA		FROM:	R.D. Fre	eman	DEPT NO.:	RPM4	INSTE	RUCT	ION N	0.:
OPERATING INSTRUCTION		TO:	RPM4 P	ersonnel			5	00	-01	
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TITLE:			нот	WORK OPER	RATIONS	5				

Issued to (name of person)	Best Wel	der Ever	
Representing:	(name of Contractor or LM Aero Dept. Na.)	Tel. No.:	(4) 1235
Permit is vali	id from 0700 until	1500 _{on}	the date of issue only.
location of work - Bldg., F	k will be performed: [be specific Floor, Column and approximate distans B04/B1, 2M, Cd36	ce from Coo	eived by Fire Prevention ordinator: ssistant Fire Chief ignature
performed)	b: (be specific when describing the joi ling condensate drain		
Fire Watch	I. Am ready	_	
(Identify w	who will provide this fire watch)		- Marietta Standby
(Identify w LM Aero - Marietta A found upon arrival at wo	ssessment upon arrival: Area res rk site)	ady for work? Ye	es No 🗆 (describe condition
Comments: Hang weldin Basic Requirements: Compliance with 29CF Area free of combustib All floor and wall ope Contractor/welder shi Notify LM Aero - Ma watch/supervisor. I certify the area cited	ssessment upon arrival: Area reark site) Ig blanket below and land land land land land land land	ady for work? Your Protection Standa (2 50'). protected by barrie (ite - excluding these completion of work	side of work area. Ind No. 10. Ins. In and follow up inspection by fire aution in accordance with the
Comments: Hang weldin Basic Requirements: Compliance with 29CF Area free of combustib All floor and wall ope Contractor/welder sh: Notify LM Aero - Ma watch/supervisor. I certify the area cited above checklist and in	ssessment upon arrival: Area resork site) Ig blanket below and large blanket	ady for work? Your Protection Standa (2 50'). protected by barrie (ite - excluding these completion of work	side of work area. Ind No. 10. Ins. In and follow up inspection by fire attion in accordance with the MIT. 08/09/06
Comments: Weldin Basic Requirements: 1. Compliance with 29CF 2. Area free of combustib 3. All floor and wall ope 4. Contractor/welder sh: 5. Notify LM Aero - Ma watch/supervisor. I certify the area cited above checklist and in I.W. Supervi	g blanket below and lang blanket below and lang blanket below and lang blanket below and language (235') and flammable liquids/gases along within 35' of the job site shall all have applicable extinguisher on sarietta Fire Protection (4-3970) upon a labove has been prepared for a structions provided with this hise	ady for work? You lot ft. either re Protection Standa (2 50'). protected by barris ite - excluding thes completion of work hazardous operator WORK PER	side of work area. Ind No. 10. Ins. In and follow up inspection by fire attion in accordance with the MIT. 08/09/06

OI 500-01 08-18-06

CONTRACTOR WELDER LM Acro - Marietta Fire protection Department HOT WORK PERMIT Permit No. Type of Operation: Grinding Welding Cutting Open Flame Burning Issued to Oualified Welder (name of person) I. M. Contractor (777) 555-1235 Tel. No.: (Representing: (name of Contractor or LM Acro Dept. No.) Permit is valid from 0650 1600 on the date of issue only. until Received by Fire Prevention Location where work will be performed: [be specific about the location of work - Bldg., Floor, Column and approximate distance from Coordinator: column(s)} B27, 1, N15-N20 Assistant Fire Chief Signature Brief description of job: (be specific when describing the job being performed) Installing condensate drain I. Am ready ☐ LM Aero - Marietta Standby Fire Watch (Identify who will provide this fire watch) LM Aero - Marietta Assessment upon arrival: Area ready for work? Yes No 🗆 (describe conditions found upon arrival at work site) Comments: Welding blanket below and 10 ft. either side of work area. Basic Requirements: Compliance with 29CFR1910.252, .253, .254; NFPA 51B, Fire Protection Standard No. 10. Area free of combustibles (≥35") and flammable liquids/gases (≥ 50"). 3. All floor and wall openings within 35' of the job site shall protected by barriers. 4. Contractor/welder shall have applicable extinguisher on site - excluding those on walls. 5. Notify LM Aero - Marietta Fire Protection (4-3970) upon completion of work and follow up inspection by fire watch/supervisor. I certify the area cited above has been prepared for a hazardous operation in accordance with the above checklist and instructions provided with this HOT WORK PERMIT. 08/10/06 W. H. Supervise Supervisor (print name) and sign Date Permit Issued: 08/10/06 / 0630 Permit Denied; Dane Ti Fire fighter: T.B. Firefighter Radio Call Number: 999

POST THIS PERMIT WHERE IT WILL BE READILY VISIBLE***

☐ Original - Fire Protection Department ☐ Copy - posted on site

	RK PERMIT	Permit No
Essued to (name of person)	Qualified Weld	er
Representing:	I. M. Contractor	Tel. No.: (777)555-1235
Permit is vali	d from 0650 until	1600 on the date of issue only.
Brief description of job performed)	will be performed: [be specific ab loor, Column and approximate distance f 1, N15-N20 b: (be specific when describing the job be ling condensate drain	Assistant Fire Chief
LM Aero - Marietta As found upon arrival at wor Comments:	rk site)	of ft. either side of work area.
Basic Requirements: 1. Compliance with 29CF 2. Area free of combustibl 3. All floor and wall oper 4. Contractor/welder sha 5. Notify LM Aero - Man watch/supervisor. I certify the area cited	R1910.252, 253, 254; NFPA 51B, Fire es (≥35') and flammable liquids/gases (≥ nings within 35' of the job site shall profit have applicable extinguisher on site rietta Fire Protection (4-3970) upon coabove has been prepared for a histructions provided with this HO	Protection Standard No. 10. 50'). otected by barriers. — escluding these on walls, mpletion of work and follow up inspection by fire azardous operation in accordance with the
Supervisor (print name) and sign		Date
Permit Issued:	710/06 0630 Time Permit	Call Number: 999 Fire fighter follow up: F. Fighter Signature Call No. (60 minutes after work complement)

*** POST THIS PERMIT WHERE IT WILL BE READILY VISIBLE***

□ Original - Fire Protection Department □ Copy - posted on site