

3 **FIRE PREVENTION DURING WELDING,**
4 **CUTTING, AND OTHER HOT WORK**

5
6 NIST S 7401.04

7 Document Date: 01/12/2021

8 Effective Date:¹ 04/01/2020
9

10
11 **1. PURPOSE**

12 The purpose of this suborder is to establish the requirements and associated roles and
13 responsibilities for performing activities involving **hot work** in **NIST spaces** (see Section 7,
14 **DEFINITIONS**).
15
16

17 **2. BACKGROUND**

- 18 a. NIST Policy (P) 7400.00, *Fire and Life Safety* articulates NIST's commitment to making fire
19 and life safety an integral core value and vital part of the NIST culture, in part by complying
20 with applicable laws, regulations, and other promulgated fire and life safety requirements.
21
22 b. The content of this suborder was derived primarily from Chapter 35 of the International Fire
23 Code (IFC) and the National Fire Protection Association (NFPA) Standard for Fire
24 Prevention During Welding, Cutting, and Other Hot Works (NFPA 51B).
25
26

27 **3. APPLICABILITY**

- 28 a. The provisions of this suborder apply to all hot work activities performed in NIST spaces
29 with the following exceptions:
30

31 (1) NIST activities involving cooking operations;
32

33 (2) NIST activities in laboratories or laboratory-owned shops involving candles², Bunsen
34 burners, alcohol burners, small hand-held torches, heat or temperature baths, hot plates,
35 furnaces, ovens, small benchtop grinding wheels, or electric soldering irons;
36

¹ For revision history, see Appendix A.

² The use of candles on NIST campuses is prohibited unless related to a laboratory experiment.

- 37 (a) This exception does not apply when such activities generate slag or more than
38 incidental amounts of sparks; and
39
40 (3) NIST activities in laboratories and laboratory-owned shops where welding does not
41 generate sparks or slag (or generates no more than incidental amounts of sparks) in open
42 air, e.g., enclosed orbital tube welder, small electrical (electric resistance) or water-based
43 spot welders.
44
45 (4) Laboratory-related fire and combustion experiments conducted in the National Fire
46 Research Laboratory.
47

48
49 **4. REFERENCES**

- 50 a. 29 CFR 1910, Subpart Q, [Welding, Cutting, and Brazing](#)
51
52 b. 29 CFR 1926, Subpart F, [Fire Protection and Prevention](#)
53
54 c. International Fire Code (IFC), Chapter 33- *Fire Safety During Construction and Demolition*,
55 2015 edition
56
57 d. IFC, Chapter 35-*Welding and Other Hot Work*, 2015 edition
58
59 e. NFPA 51B, *Fire Prevention During Welding, Cutting, and Other Hot Work*, 2014 edition
60
61 f. NFPA 241, *Standard for Safeguarding Construction, Alteration, and Demolition Operations*,
62 2013 edition
63
64 g. ANSI Z49.1, *Safety in Welding, Cutting, and Allied Processes*, 2012 edition
65
66 h. NCFR-3.7, *Policy on Work Requiring a Cutting and Welding Permit*
67
68

69 **5. APPLICABLE NIST OCCUPATIONAL SAFETY AND HEALTH SUBORDERS**

- 70 a. NIST P 7400.00: *Fire and Life Safety*
71
72 b. NIST O 7401.00: *Fire and Life Safety*
73
74 c. NIST S 7401.03: *Impairment of Fire Protection and Life Safety Systems* (under development)
75
76 d. NIST S 7101.20: *Work and Worker Authorization Based on Hazard Reviews (“Hazard*
77 *Review”)*
78

- 79 e. NIST S 7101.21: *Personal Protective Equipment (PPE)*
- 80
- 81 f. NIST S 7101.23: *Safety Education and Training*
- 82
- 83 g. NIST S 7101.61: *Compressed Gas Safety*
- 84

85

86 6. REQUIREMENTS

- 87 a. Authorization of Work and Workers Performing Hot Work
- 88

89

90 (1) Hot work in NIST spaces shall be performed only in **designated areas** and **permit-**
91 **required areas** approved for the hot work by a NIST **Permit Authorizing Individual**
92 **(PAI)** (see Section 7, DEFINITIONS).

93

94 (2) For hot work to be performed by NIST employees and covered associates:

95

96 (a) The requirements established by the PAI in designated area certificates and **hot work**
97 **permits** (for permit-required areas) (see Section 7, DEFINITIONS) shall be
98 incorporated by the OU into the hazard review or job hazard analysis for the hot
99 work; and

100

101 (b) The activity involving the hot work and those performing it shall be authorized by the
102 OU in accordance with the requirements of this suborder and NIST S 7101.20: *Work*
103 *and Worker Authorization Based on Hazard Reviews*.

104

105 (3) For hot work to be performed by non-R&D contractors in NIST spaces, the requirements
106 established by the PAI in a designated area certificate or hot work permit shall be
107 incorporated by the Contracting Officer's Representative (COR) into the non-R&D
108 contractor's safety plan.

109

110 (4) The following additional requirements shall be incorporated into the hazard reviews of
111 activities involving hot work performed by NIST employees and covered associates, or
112 into the safety plans for hot work performed by non-R&D contractors, whichever is
113 applicable:

114

115 (a) Hot work equipment shall be inspected per manufacturer's instructions by those
116 performing the hot work each time prior to use to ensure that it is in safe operating
117 condition.

118

119

120

121 i. Equipment with broken, loose, or missing components, which prohibit safe
122 operation of the equipment, shall be placed out-of-service (refer to NIST S
123 7101-56 for Control of Hazardous Energy and NIST S 7101-64 for Electrical
124 Safety).

125
126 (b) Those performing the hot work and nearby personnel shall be suitably protected
127 against dangers such as heat, sparks, slag, and fumes in accordance with the
128 requirements of NIST S 7101.21: *Personal Protective Equipment (PPE)* and [29 CFR](#)
129 [1910.252\(b\)](#).

130
131 b. NIST Permit Authorizing Individuals³
132
133 (1) Designated areas and permit-required areas related to research activities in NIST spaces
134 (where a hazard review is required) shall be approved by an Office of Safety, Health, and
135 Environment (OSHE) PAI.

136
137 (2) Designated areas and permit-required areas related to construction and maintenance
138 activities in NIST spaces shall be approved by an Office of Facilities and Property
139 Management (OFPM) PAI or a NIST Gaithersburg Fire Protection Group (FPG) PAI.

140
141 (3) Designated areas and permit-required areas related to laboratory activities not requiring a
142 hazard review can be approved by PAIs from any of the above-mentioned organizations.

143
144 (4) The NIST AHJ may approve the assignment of PAIs outside of the above-mentioned
145 organizations (i.e. within a laboratory OU), where special circumstances exist.

146
147 c. Process to Obtain a Designated Area Certificate

148
149 (1) For hot work to be performed by NIST employees or covered associates, a NIST
150 employee from the OU owning the proposed designated area shall contact the PAI to
151 request an inspection of the area.

152
153 (2) For hot work to be performed by non-R&D contractors in NIST spaces, the COR shall
154 contact the PAI to request an inspection of the proposed designated area.

155
156 (3) A designated area certificate (see Appendix B) shall be issued by the PAI after inspection
157 of the area and a determination that the requirements for a designated area (see Appendix
158 C) have been met.

159
160

³ An individual must complete the PAI training module to be an approved PAI as indicated in Section 9f.

161 (a) The PAI shall complete an inspection of the designated area within five (5) business
162 days of the request.

163

164 i. Requests requiring urgency will be expedited by the PAI.

165

166 (4) The designated area certificate shall be prominently displayed immediately outside of the
167 designated area.

168

169 (5) A designated area certificate shall be valid for 1 (one) year.

170

171 (6) For reissuance of a designated area certificate for hot work to be performed by NIST
172 employees or covered associates, an employee from the OU owning the designated area
173 shall contact the PAI no later than one (1) month prior to the expiration date of the
174 current designated area certificate to request a re-inspection of the area.

175

176 (7) For reissuance of a designated area certificate for hot work to be performed by non-R&D
177 contractors, the COR shall contact the PAI no later than one (1) month prior to the
178 expiration date of the current designated area certificate to request a re-inspection of the
179 area.

180

181 (a) After re-inspection of the area and a determination that the requirements for a
182 designated area (see Appendix C) continue to be met, the PAI shall issue a new
183 designated area certificate with a new issuance and expiration date.

184

185 d. Process to Obtain a Hot Work Permit (for Permit-Required Areas)

186

187 (1) For hot work to be performed by NIST employees or covered associates, a NIST
188 employee from the OU owning the proposed permit-required area shall contact the PAI to
189 request an inspection of the area.

190

191 (2) For hot work to be performed by non-R&D contractors in NIST spaces, the COR shall
192 contact the PAI to request an inspection of the proposed permit-required area.

193

194 (3) A hot work permit (see Appendix D) shall be issued by the PAI after inspection of the
195 area and a determination that the applicable requirements for a permit-required area have
196 been met.

197

198 (a) The PAI shall complete an inspection of the permit-required area within two (2)
199 business days of the request.

200

201 i. Requests requiring urgency will be expedited by the PAI.

202

203 (3) The hot work permit shall be prominently displayed in the work area during the period of
204 authorized work performance (*e.g.*, issuance to expiration).

205
206 (4) The PAI shall determine the length of time for which hot work permits are valid, but the
207 time period shall be no longer than seven (7) calendar days.

208
209 (a) If a hot work permit is going to be needed for longer than seven (7) calendar days, the
210 PAI should consider the establishment of a designated area.

211
212 (b) If the area cannot be designated as a designated area, a new hot work permit must be
213 issued every seven (7) calendar days for the duration of the hot work.

214
215 e. Training

216
217 (1) Training shall be provided, documented, and recorded in accordance with the
218 requirements of the NIST S 7101.23: *Safety Education and Training*.

219
220 (2) NIST employees and covered associates who are to perform hot work shall complete:

221
222 (a) Training provided by OSHE on this program;

223
224 (b) Activity-specific training, provided by the Organizational Unit (OU), required by
225 applicable hazard reviews; and

226
227 (c) Training provided, arranged, or approved by OSHE on the use of fire extinguishers
228 (refresher training required annually for continuance of activity).

229
230 (3) Official first-level supervisors of NIST employees and covered associates who are to
231 perform hot work shall complete the training provided by OSHE on this program.

232
233 (4) CORs for non-R&D contractors who are to perform hot work shall complete the training
234 provided by OSHE on this program.

235
236 (5) PAIs shall complete the PAI training module provided by OSHE on NFPA 51B and on
237 this suborder.

238
239
240 **7. DEFINITIONS**

241 a. Associate – An individual conducting work at a NIST workplace who is not a NIST
242 employee. For a list of NIST associate types, click here.

- 244 b. Authority Having Jurisdiction (AHJ) – A qualified FPE⁴ in OSHE designated by the NIST
245 CSO to enforce⁵ the NIST-adopted codes and standards relevant to fire, electrical, and life
246 safety on NIST-owned and operated sites.
247
- 248 c. Covered Associate – A NIST associate permitted to perform work at a NIST workplace and
249 subject to NIST policies and procedures, and to the extent allowed by law and the terms of
250 the associate’s agreement. Covered associates include Foreign and Domestic Guest
251 Researchers (including contractors who perform NIST R&D/technical work); Research
252 Associates; Intergovernmental Agency Personnel Act assignees; Facility Users; Volunteer
253 Students; and other federal employees who perform work at NIST workplaces.
254
- 255 d. Designated Area – A specific area, such as a welding shop or a soldering station, in which
256 hot work is regularly performed and which has been approved for such work by a PAI based
257 on their inspection of the area against the requirements of Appendix C.
258
- 259 e. Designated Area Certificate – A document issued by a PAI pursuant to approving a location
260 for the regular performance of hot work activities.
261
- 262 f. Fire Resistive – Refers to properties or designs to resist the effects of any fire to which a
263 material or structure can be expected to be subjected (extracted from NFPA *Glossary of*
264 *Terms*).
265
- 266 g. Fire Watch – The assignment of a person (or persons) to an area for the express purpose of
267 notifying the fire department, the building occupants, or both of an emergency; preventing a
268 fire from occurring; extinguishing small fires; or protecting the public from fire or life safety
269 changes.
270
- 271 h. Hot Work – Work involving welding, brazing, open flame soldering, heat treating, grinding,
272 thawing pipes, powder-driven fasteners, hot riveting, torch-applied roofing, or any other
273 process requiring use of a spark, flame, or heat that is capable of initiating fires or
274 explosions.
275
- 276 i. Hot Work Equipment – Electric or gas welding, cutting, and heating equipment used for hot
277 work.
278
- 279 j. Hot Work Permit – A document issued by a PAI pursuant to approving a permit-required
280 area.

⁴ See requirements for Office of Personnel Management [Fire Protection Engineering Series 0804](#).

⁵ Nature of enforcement is dependent upon the severity of the violation, e.g., stop work, revoke permit, denial of use and occupancy, etc.

- 281 k. NIST Space – A space that is owned, operated, and under the control of NIST.
282
- 283 l. Noncombustible – A material that, in the form in which it is used and under conditions
284 anticipated, will not ignite, burn, support combustion, or release flammable vapors when
285 subjected to fire or heat. Materials that are reported as passing ASTM E136 shall be
286 considered noncombustible materials (extracted from *NFPA Glossary of Terms*).
287
- 288 m. Non-R&D Contractor – A NIST associate who performs non-R&D work at a NIST
289 workplace in accordance with the safety requirements of a contract or other legal
290 arrangement, such as a Memorandum of Understanding, with NIST Non-R&D contractors
291 include, but are not limited to, construction contractors; facilities contractors; equipment
292 installation, service, and maintenance contractors; Health Unit contractors; contract cafeteria
293 workers; and janitorial contractors.
294
- 295 n. Official First-Level Supervisor (of Another Employee or of a Covered Associate) – The
296 Rating Official on the performance plan of another employee or the supervisor of a covered
297 associate.
298
- 299 o. Permit Authorizing Individual (PAI) – An individual authorized to approve hot work requests
300 by virtue of completing the training provided by OSHE on NFPA 51B and this suborder
301
- 302 p. Permit-Required Area – Any location other than a designated area that has been approved for
303 hot work by a PAI based on their inspection of the area against the requirements of Appendix
304 C.
305
- 306 q. Welding Blanket – A heat-resistant fabric designed to be placed in the vicinity of hot work
307 operations. Intended for use in horizontal applications with light to moderate exposures such
308 as that resulting from chipping, grinding, heat treating, sand blasting, and light horizontal
309 welding. Designed to protect machinery and prevent ignition of combustibles such as wood
310 located on the underside of the blanket. (Extracted from *NFPA Glossary of Terms*)
311
- 312 r. Welding Curtain – A heat-resistant fabric designed to be placed in the vicinity of hot work
313 operations. Intended for use in vertical applications with light to moderate exposures such as
314 that resulting from chipping, grinding, heat treating, sand blasting, and light horizontal
315 welding. Designed to prevent sparks from escaping the area. (Extracted from *NFPA Glossary
316 of Terms*)
317
- 318 s. Welding Pads – A heat-resistant fabric designed to be placed directly under a hot work
319 operation such as welding or cutting. Intended for use in horizontal applications with severe
320 exposures such as that resulting from molten substances or heavy horizontal welding.
321 Designed to prevent ignition of combustibles that are located to the underside of the pad.
322 (Extracted from *NFPA Glossary of Terms*)

323 **8. ACRONYMS**

- 324 a. AHJ – Authority Having Jurisdiction
325
326 b. ANSI – American National Standards Institute
327
328 c. CFR – Code of Federal Regulations
329
330 d. COR – Contracting Officers Representative
331
332 e. CSO – Chief Safety Officer
333
334 f. FPG – Fire Protection Group, Emergency Services Office
335
336 g. NFPA – National Fire Protection Association
337
338 h. OFPM – Office of Facilities and Property Management
339
340 i. OSHA – Occupational Safety and Health Administration
341
342 j. OSHE – Office of Safety, Health, and Environment
343
344 k. OU – Organizational Unit
345
346 l. PAI – Permit Authorizing Individual
347
348

349 **9. RESPONSIBILITIES**

350 Roles and responsibilities common to all NIST Fire and Life Safety suborders are delineated in
351 NIST O 7401.00: *Fire and Life Safety*. The roles and responsibilities specific to this suborder are
352 as follows:

353
354 a. OU Directors:

- 355
356 (1) Ensuring that OU activities involving hot work and those conducting that work are
357 authorized in accordance with the requirements of this suborder and NIST S 7101.20,
358 *Work and Worker Authorization Based on Hazard Reviews*.
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360
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- 364 b. Official First-Level Supervisors of NIST Employees and Covered Associates Performing Hot
365 Work:
366
- 367 (1) Ensuring that the requirements established by PAIs in designated area certificates and hot
368 work permits are incorporated into the hazard reviews of the activities involving hot
369 work;
370
 - 371 (2) Ensuring that the requirements of Section 6a(4) are incorporated into the hazard reviews
372 of activities involving hot work;
373
 - 374 (3) Ensuring that the training specified in Section 6c is completed prior to NIST employees
375 and covered associates engaging in hot work;
376
 - 377 (4) Completing the training required by Section 6c;
378
 - 379 (5) Ensuring that designated area certificates are prominently displayed immediately outside
380 the designated area; and
381
 - 382 (6) Ensuring that hot work permits are prominently displayed in the work area during the
383 period of authorized work performance.
384
- 385 c. NIST Employees and Covered Associates Performing Hot Work:
386
- 387 (1) Completing the training specified in Section 6c; and
388
 - 389 (2) Ensuring that the requirements established by PAIs in designated area certificates and hot
390 work permits are followed.
391
- 392 d. CORs:
393
- 394 (1) Completing the training specified in Section 6c;
395
 - 396 (2) Submitting requests for designated areas and permit-required areas to an appropriate PAI;
397
 - 398 (3) Ensuring that the requirements established by the PAI in designated area certificates or
399 hot work permits are incorporated into the non-R&D contractor safety plans;
400
 - 401 (4) Ensuring that non-R&D contractors are aware of the hazards in the area where hot work
402 will be performed;
403
 - 404 (5) Ensuring that non-R&D contractors are qualified to do the hot work; and
405

406 (6) Ensuring that non-R&D contractors comply with the requirements of hot work permits
407 and their safety plans.

408

409 e. NIST AHJ:

410

411 (1) Approving OSHE, OFPM, and FPG PAIs based on their completion of training;

412

413 (2) Maintaining a current list of approved PAIs; and

414

415 (3) Annually auditing designated area certificates and hot work permits to ensure that
416 program requirements are being met and records are being appropriately maintained.

417

418 f. PAIs:

419

420 (1) Completing the PAI training module provided by OSHE on NFPA 51B and this suborder;

421

422 (2) Inspecting requested designated areas and permit-required areas against the requirements
423 of Appendix C

424

425 (3) Upon determining that all applicable designated area or permit-required area
426 requirements have been met, issuing designated area certificates and hot work permits;

427

428 (4) Maintaining electronic or hard copies of all designated area certificates and hot work
429 permits for a minimum of one (1) year; and

430

431 (5) Making electronic or hard copies of all designated area certificates and hot work permits
432 available to the AHJ upon request.

433

434 g. NIST Employees Assigned to Conduct Fire Watches:

435

436 (1) Completing the training provided by OSHE on this program;

437

438 (2) Completing annual training provided or approved by OSHE on the use of required fire
439 extinguishers.

440

441 (3) Stopping hot work and notifying the PAI if unsafe conditions develop; and

442

443 (4) Knowing how to summon emergency help.

444

445

446

447

448 **10. AUTHORITIES**

449 For authorities applicable to all NIST Fire and Life Safety suborders, see NIST O 7401.00: Fire
450 and Life Safety.

451

452 a. NIST Employees in OUs Needing to Perform Hot Work:

453

454 (1) Submit requests for designated areas and permit-required areas to an appropriate PAI,
455 with the understanding that they provide the requirements established by the PAI to the
456 official first-level supervisor for incorporation into the hazard review of the activities
457 involving hot work.

458

459

460 **11. DIRECTIVE OWNER**

461 Chief Safety Officer

462

463

464 **12. APPENDICES**

465 A. Revision History

466 B. Designated area certificate

467 C. Requirements for Designated Areas and Permit-Required Areas

468 D. Hot Work permit

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Appendix A. Revision History

472

Revision No.	Approval Date	Responsible Person	Brief Description of Change; Rationale
0	09/30/17	TBD	<ul style="list-style-type: none">• None – Initial document
1	1/12/21	April Camenisch	Updated CFR links and NIST Suborder links.

473

474

Appendix B: Designated Area Certificate

NIST-XXX			U.S. DEPARTMENT OF COMMERCE NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY	
<h1 style="margin: 0;">DESIGNATED (HOT WORK) AREA</h1> <h2 style="margin: 0;">CERTIFICATE</h2> <h3 style="margin: 0;">OSHE-FFSG</h3>				
A. CERTIFICATE DETAIL				
Certificate Number	Building Number	Room Number	Date of Issue	Date of Expiration
B. CONTACT INFORMATION				
Name of Supervisor or COR:			Phone Number:	
C. TYPE OF HOT WORK				
D. PRECAUTIONS CHECKLIST (TO BE COMPLETED BY PAI)				
<ul style="list-style-type: none"> <input type="checkbox"/> Designated area is constructed of noncombustible or fire-resistive materials <input type="checkbox"/> Designated area is free of combustible and flammable contents including gases and liquids <input type="checkbox"/> No openings, holes, penetrations, or cracks are present in fire-resistive construction within the designated area. <input type="checkbox"/> If enclosed, appropriate ventilation (with noncombustible ducting) is present in the designated area. <input type="checkbox"/> A functional fire extinguisher is mounted in the immediate vicinity of the designated area. <input type="checkbox"/> All combustibles are located at least _____ feet in all directions from the designated area as determined by the PAI. 				
D. AUTHORIZATION				
Signature of Permit Authorizing Individual (PAI):		Name (Print) of PAI:		Phone Number:

Appendix C. Requirements for Designated Areas and Permit-Required Areas

a. Designated Areas

- (1) Designated areas shall be constructed of noncombustible or fire-resistive materials and shall be free of combustible and flammable contents.
 - (a) All openings, holes, penetrations, or cracks in the fire-resistive construction shall be sealed with fire-rated or noncombustible material to prevent the passage of sparks to adjacent areas.
- (2) Designated areas shall also meet the requirements for permit-required areas listed below.
- (3) Enclosed designated areas shall have a working ventilation system. The ductwork must be noncombustible and not capable of transmitting sparks out of the area.
- (4) A fire extinguisher having the appropriate classification for the hazard shall be specified by the PAI for mounting immediately adjacent to the designated area.

b. Permit-Required Areas

- (1) Floors shall be swept clean for a radius of 35 feet^{6,7} (11 meters) of the hot work site to ensure combustible material, such as paper clippings, wood shavings, or textile fibers, are not present.
- (2) Floors constructed of a combustible material (*e.g.*, wood) shall be kept wet, covered with damp sand, or protected by a listed or approved welding blanket, welding pad, or equivalent for a radius of 35 feet^{6,7} (11 meters) of the hot work site.
- (3) Walls, partitions, ceilings, or roofs of combustible construction shall be protected from hot works occurring near them by a listed or approved welding curtain, welding blanket, welding pad, or equivalent.

⁶ In instances where the scope of work, tools used to conduct hot work, or size of the room/space in which hot work is conducted, are known to be incapable of generating or allowing slag, sparks, splatter, or similar mobile sources of ignition to travel farther than 35 feet (11 meters) from the hot work site, the PAI shall be permitted to reduce the distance. The approved distance shall be documented on the permit.

⁷ In instances where the scope of work and tools used to conduct hot work may result in the possible travel of slag, sparks, splatter, or similar mobile sources of ignition farther than 35 feet (11 meters) from the hot work site, the PAI shall extend the distance. The approved distance shall be documented on the permit.

- 515 (4) Ducts and conveyor systems located within 35 feet^{6, 7} (11 meters) of the hot work site
516 that might carry sparks to distant combustibles shall be shielded, shut down, or both.
517
- 518 (5) Openings, holes, penetrations, or cracks in walls, floors, or ducts within 35 feet^{6, 7} (11
519 meters) of the hot work site shall be covered or sealed with listed or approved fire-rated
520 or noncombustible material.
521
- 522 (6) All combustibles within 35 feet^{6, 7} (11 meters) of the hot work site shall be relocated.
523
- 524 (a) If relocation of combustibles is impractical, combustibles shall be protected by a
525 listed or approved welding curtain, welding blanket, welding pad, or equivalent.
526
- 527 (b) To prevent the entrance of sparks or slag, the edges of covers at the floor shall be
528 tight, including at the point at which several covers may overlap.
529
- 530 (7) For hot work performed in close proximity to a wall, partition, ceiling, or roof,
531 precautions shall be specified by the PAI to prevent ignition of combustibles that may
532 be located on the other side of the wall, partition, ceiling, or roof.
533
- 534 (8) For hot work performed in close proximity⁸ to a fire protection device, precautions
535 shall be specified by the PAI to prevent accidental operation of an automatic fire
536 detection or suppression system⁹.
537
- 538 (9) Fully charged and operable fire extinguishers appropriate for the type of possible fire
539 shall be specified by the PAI and available in the work area (*e.g.*, within the 35-foot
540 perimeter or limits of the room/space).
541
- 542 (10) If existing hose lines are located within the hot work area defined by permit, they shall
543 be connected and ready for service but shall not be required to be unrolled or charged.
544

545 c. Fire Watches
546

- 547 (1) The PAI may require a fire watch when hot work is performed under any of the
548 following circumstances:
549
- 550 (a) A fire protection system is impaired;
551
- 552 (b) A life safety system is impaired; or

⁸ If sufficient heat, smoke, or particulate could be developed such that activation of fire protection devices would be likely, then the hot work would be deemed to be in “close proximity” to the fire protection devices.

⁹ Where fire alarm or fire suppression system impairments are necessary, the requirements of NIST S7401.03 *Fire Protection and Life Safety System Impairments* shall be followed.

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(c) The requirements for a hot work permit are met, but the PAI is still concerned that ignition from spark or slag could occur.

(2) A fire watch shall be maintained for a minimum of 30 minutes after completion of hot work operations.

(a) The duration of a fire watch may be extended if the PAI determines the conditions warrant an extension.

(3) The PAI shall determine the number of individuals needed to conduct a fire watch.

i. In some cases, it may be necessary to assign more than one employee to conduct fire watch duties, *e.g.*, where multiple floors are affected.

(4) The PAI shall determine the location(s) of the fire watch.

d. Non-Permissible Areas

(1) Hot work shall not be performed in the following areas.¹⁰

(a) In sprinklered buildings where sprinklers are impaired, unless the requirements of NFPA 25, *Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection* are met and a fire watch is provided;

(b) In areas where explosive atmospheres may be present, *i.e.*, where mixtures of flammable gases, vapors, liquids, or dusts with air exist;

(c) In areas where contaminated equipment, drums, tanks, or other containers that have previously contained materials that could develop explosive atmospheres may be present;

(d) On a partition, wall, ceiling, or roof with a combustible covering and/or insulation, or combustible sandwich-type panel construction; and

(e) On pipes or other metal that is in contact with combustible walls, ceilings, roofs, or other combustibles if the work is close enough to cause ignition by conduction.

¹⁰ In such areas, techniques other than hot works must be utilized.

HOT WORK PERMIT

OSHE-FFSG

A. PERMIT DETAIL

Permit Number	Building Number	Room Number	Date of Issue	Date of Expiration

B. TYPE OF HOT WORK

<p>C. PRECAUTIONS CHECKLIST (TO BE COMPLETED BY PAI)</p>

Requirements within _____ feet of hot work.

- Flammable and combustible liquids, dust, lint, and oil deposits are removed.
- Flammable and combustible gases are removed.
- Floor is swept clean of combustible materials and trash.
- Wall, ceiling, and floor openings are covered.

Requirements for hot work on walls, ceilings, or roofs (N/A)

- Construction is noncombustible and without combustible coverings or insulations
- Combustible materials on other side of walls, ceilings, or roofs is moved away.

Requirements for hot work on enclosed equipment (N/A)

- Enclosed equipment is cleaned of all combustibles
- Containers are purged of flammable liquid/vapor
- Pressurized vessels, piping, and equipment has been removed from service, isolated, and vented.

Requirements for fire watch (N/A)

- Fire watch is provided during and for a maximum of 30 minutes after hot work, including any break activity.
- Fire watch is provided with a suitable extinguishment method.
- Fire watch is trained in use of equipment and in sounding alarm.

D. SPECIAL PROVISIONS

- Ductwork blanks required
- Overhead spark/slag collection required
- Combustible floor wet down required
- Welding pads, blankets, or curtains required
- Arc-welding screens required
- Additional ventilation required
- Fire protection system impairment required
- Fall protection required
- LOTO required
- Confined space entry required

- Fire watch is required in adjoining areas above and below hot work location.
- Fire watch is extended beyond 30 minutes. (Fire Watch duration of _____ minutes is required).
- Other:

D. SUPERVISOR OR COR

Signature of Supervisor or COR:	Name (Print) of Supervisor or COR:	Phone Number:

E. AUTHORIZATION

Signature of Permit Authorizing Individual (PAI):	Name (Print) of PAI:	Phone Number:

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