

**COATINGS MANUAL
HRSD**

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9.0 THIRD PARTY INSPECTION GUIDELINES

9.1 The Value of Third Party Inspection

Third Party Inspection brings value to HRSD for critical coatings projects involving the following circumstances:

- Linings for highly corrosive environments.
- Complex coating systems from the application and environmental control perspective.
- Technically challenging projects from a quality control standpoint.
- Very large scope or spread out multi-faceted coatings project at one HRSD facility.
- Concurrent similar coatings projects at multiple HRSD facilities or locations.
- Situations where third party assistance in conflict resolution is required.

The value that Third Party Inspection brings is the enforcement and enhancement of the quality of the coatings work that is performed when HRSD in-house inspectors have neither the time nor the experience to complete this role. Coatings work is becoming progressively more expensive with time. As such, ensuring the highest quality of coatings work and achieving the maximum effective service lives for new coating systems is cost effective over time for HRSD. Through the right experience and because of the proper expertise, third party inspectors can efficiently enforce the quality requirements of the Standard Coatings Specifications, the Coating System Guidelines, and all referenced quality standards and other documents. This enforcement if properly achieved will avert premature coating system failure and minimize contractual conflict between HRSD and Contractors.

Premature coating failure is extremely expensive because all aspects of the project costs are repeated plus added costs. This includes the costs associated with HRSD downtime, recoating work, HRSD operational costs, and other indirect costs. Furthermore, premature coating failure results in further corrosive deterioration to structures and equipment. This, in turn, brings additional costs to HRSD for the rehabilitation, replacement, and restoration of structural surfaces, equipment, piping, and other assets. So avoiding premature coating failure saves money both short and long-term.

The added value that proper Third Party Inspection can bring is the prevention of adversarial relations and contractual conflict between Contractors and HRSD. When HRSD inspection personnel lack the time, experience, or training to properly and effectively enforce the quality control on coatings projects, one probable outcome will be conflictual relations and antagonism between the Contractor's personnel and HRSD.

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Routine and proper inspection that can be provided by a third party can avoid such discord. This is accomplished by good inspection practices, proper definition of expectations, and routine and systematic communication. Third party inspectors must inspect regularly and in a supportive manner. This means timely inspections and execution of Hold Points to prevent unnecessary rework by the Contractor. This also requires that the inspector has wastewater coatings inspection experience similar to the subject project. An inexperienced third party inspector can cause the Contractor to perform unnecessary rework and develop a mistrusting attitude. Avoiding conflict is also achieved by establishing a clear definition of expectations between the inspector and the Contractor. This includes identifying what is acceptable surface preparation and coating application work using mock-ups, visual standards, and obtaining a clear consensus as to quality expectations. It also involves performing the inspection work when and where the Contractor expects it to be performed, not after too much production work has been performed. And finally the inspector and the Contractor must have routine communications. They must talk openly and honestly several times each shift. This should be done as a minimum at the start, middle, and end of each shift. Meeting times should be established early on in the project to minimize work interruption and assure regular quality checks as the work proceeds. Conducting inspections during the Contractor's breaks, lunchtimes, and shift changes is often a sensible approach. In short, the value of Third Party Inspection is found in the time, cost, and conflict savings it brings to HRSD on those Coatings Projects where HRSD in-house inspection resources lack the experience, training, and/or time to effectively enforce the quality requirements of the coating work.

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9.2 When to Use Third Party Inspection

Generally, the guidelines for using Third Party Inspection are as follows:

- A. When the coating work specified is technically challenging for HRSD personnel or extremely critical from a corrosion protection standpoint, third party inspection should be utilized. This would include projects such as linings for the headspaces of tanks or structures exposed to very high H₂S gas concentrations. Another example might be the interior lining of an anaerobic digester roof.
- B. When the scope of the coatings work being performed is such that HRSD personnel cannot cover it adequately without cutting into the time necessary for completion of their normal HRSD daily duties, third party inspection should be used.
- C. When a coatings project involves a physical scope of work that is very large and spread out across the facility and there is insufficient available time for in-house personnel to properly perform all of the inspection work necessary to ensure good quality control, third party inspection should be used.
- D. When multiple coatings projects are underway at one Plant or at two or three of the treatment plants where the same coating system is being applied (or at several HRSD facilities like pump stations and plants, etc.), third party inspection should be used. In such situations, inspection is needed for most of the day to cover all of the project work at the various locations. Therefore a third party inspection can be kept busy and productive throughout the day going from work site to work site.
- E. When special inspection skills are required such as high voltage holiday detection on coated or lined concrete surfaces where the coating work being performed is rectifying a prior coating failure (premature), third party inspection services should be used. This is because special training about a given test method or special failure analysis knowledge is needed.
- F. When there is a conflict between HRSD and a Contractor associated with a given coating project and the related work failed prematurely and is being redone, this is a good time to use a third party coatings inspector. This ensures independence in evaluating the quality of the rework and gives HRSD a better legal standing in the event of further conflict. This covers those situations where conflict resolution is involved.
- G. Typically, use Third Party Inspection for projects which involve the following standard HRSD Coating Systems:

E-5, E-5-C, E-6, FP-1, FP-2, PU-1, and VE-1.

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Please review each project carefully and separately before making the decision to use In-House Inspection or Third Party Inspection. Weigh your decision based on the HRSD inspector's level of experience, the complexity and criticality of the coatings work, and HRSD's experience with the successful bidder (Contractor).

9.3 Qualifications for Third Party Inspectors

The recommended minimum qualifications for Third Party Inspectors used on HRSD coatings projects are as follows:

- A. Minimum of five (5) years of documentable experience as a coatings inspector on wastewater related coatings projects including projects in collection systems and/or in wastewater treatment plants. This experience must be verifiable through actual contact references including agency or authority names, personal contact names, project descriptions, work locations, telephone numbers, and email addresses. At least five references must be provided.

and

- B. Inspector must be a NACE International Certified Coatings Inspector and his/her NACE number must be provided.

or

- C. Inspector has successfully completed Level I of the NACE Inspector training and has worked under the supervision and guidance of a NACE International Certified Level III Coatings Inspector for at least 5 years and has the requisite experience described in Item A. above.

and

- D. Must provide at no additional costs all required inspection tools, instruments, standards, and references as necessary to perform the inspection work. See Subsection 9.5 of this Coatings Manual for minimum requirements.

and

- E. Must be Confined Space Entry trained and provide a certificate that verifies such training by a recognized safety training organization.

and

- F. Must be familiar with HRSD Coatings Inspection Requirements including Inspection Report Form and Mandatory Hold Points. See Subsection 9.4 of this Coatings Manual.

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and

- G. Must be intimately familiar with HRSD's Standard Coatings Specifications Section 7 of this Coatings Manual and the applicable Coating System Guidelines (Section 8.0 of this Coatings Manual) for the subject coatings project.

9.4 Documentation System for Third Party Inspection

A. Required Report Forms

All Third Party Inspectors shall use the following HRSD Daily Coatings Inspection Report Forms to document inspection findings and corrective action reinspections on all HRSD Coatings Projects:

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HRSD DAILY COATING INSPECTION REPORT FOR THIRD PARTY INSPECTORS (fill out electronically)

Project/Client:	Date:	Page # _____ of _____
Location:	Project #:	Copy to: <input type="checkbox"/> Office <input type="checkbox"/> Client <input type="checkbox"/> Proj. Mgr. <input type="checkbox"/>
Description:	Inspector:	
Requirements:	Inspection Company:	
Contractor:	Spec #:	Revision #:
DESCRIPTION OF AREAS & WORK PERFORMED		
HOLD POINT INSPECTIONS PERFORMED		
<input type="checkbox"/> Weather and site conditions <input type="checkbox"/> Pre surface prep/condition & cleanliness <input type="checkbox"/> Surface preparation monitoring <input type="checkbox"/> Post surface prep/cleanliness & profile <input type="checkbox"/> Application monitoring/wet film thickness (WFT) <input type="checkbox"/> Post application/application defects <input type="checkbox"/> Post cure/dry film thickness (DFT) <input type="checkbox"/> Corrective actions follow up & final inspection		
APPROVED BY: _____ (Inspector's Name)		
SURFACE CONDITIONS		
<input type="checkbox"/> New <input type="checkbox"/> Maint <input type="checkbox"/> Age <input type="checkbox"/> Dry <input type="checkbox"/> Cure <input type="checkbox"/> Concrete <input type="checkbox"/> Steel <input type="checkbox"/> Galvanized <input type="checkbox"/> Primer <input type="checkbox"/> Paint <input type="checkbox"/> Dry To Touch <input type="checkbox"/> Dry to Handle <input type="checkbox"/> Dry to Recoat Fall Out _____ Sample Report # _____ <input type="checkbox"/> Weld <input type="checkbox"/> Scale <input type="checkbox"/> Pitting/Holes <input type="checkbox"/> Crevices <input type="checkbox"/> Sharp Edges <input type="checkbox"/> Pinholes <input type="checkbox"/> Runs/Sags <input type="checkbox"/> Holidays <input type="checkbox"/> Abrasions <input type="checkbox"/> Dry/Overspray Cl _____ ug/cm ² /ppm Fe _____ ppm pH _____ Hazard _____ Moisture/Oils _____ Degree of Contamination _____ Degree of Corrosion _____ Painted Surface Condition _____		
AMBIENT CONDITIONS		SURFACE PREPARATION
Areas: _____ Time _____ Wet bulb temp° C/F _____° _____° _____° _____° Surf temp° C/F Min/Max _____ / _____° _____ / _____° _____ / _____° _____ / _____° Wind direction/speed _____ _____ Dry bulb temp° C/F _____° _____° _____° _____° % Relative humidity _____% _____% _____% _____% Dew point temp° C/F _____° _____° _____° _____° Weather conditions: _____		Start Time _____ Finish Time _____ Area ft ² /m ² _____ <input type="checkbox"/> Solvent Clean Blast Hose Size _____ <input type="checkbox"/> Hand Tool Nozzle Size/PSI _____ <input type="checkbox"/> Power Tool Air Supply CFM _____ HP Wash PSI _____ <input type="checkbox"/> Air Supply Clean <input type="checkbox"/> Abrasive Blast <input type="checkbox"/> Water/Oil Trap Check Abrasive Type _____ <input type="checkbox"/> Equip Condition Check <input type="checkbox"/> Abrasive Sample Water Blasting _____
APPLICATION		
Start Time: _____	Finish Time: _____	Area _____ ft ² /m ²
<input type="checkbox"/> Primer	Qty Mixed _____	Achieved WFT _____
<input type="checkbox"/> Intermediate	Mix Ratio _____	<input type="checkbox"/> Airless/Conv
<input type="checkbox"/> Topcoat	Mix Method _____	<input type="checkbox"/> Brush
<input type="checkbox"/> Touch-up	Strain/Screen _____	<input type="checkbox"/> Roller
Generic Type _____	Material Temp _____	<input type="checkbox"/> Primer
Manufacturer _____	Induction Time _____	<input type="checkbox"/> Pump/Pot
Product Name _____	Pot Life _____	Hose Diameter _____
Product # _____	Reducer # _____	Hose Length _____
Color _____	Quantity Added _____	<input type="checkbox"/> Air Check
Kit Size/Condition _____	% By Volume _____%	<input type="checkbox"/> Trap
Shelf Life _____	Specified WFT _____ mils/um	Ratio/Size _____
SURFACE CLEANLINESS & PROFILE MEASUREMENT		
Job Spec. NACE/SSPC-SP- _____	NACE/SSPC SPEC/Visual Stds _____	
Profile Check: Disc _____ Tape _____ Gauge _____	Specified _____ mils/um	Achieved _____ mils/um
Surface Effect on D.F.T. Gauge/BMR/ _____ mils/um		
D.F.T. GAUGE CALIBRATION		
Gauge Type/Model _____	Gauge Serial # _____	Gauge Calib Verified _____
Specified Avg. D.F.T _____	Avg. D.F.T. this Coat _____	Avg. D.F.T. last Coat _____
Total Avg. D.F.T. _____		
Inspector's Name _____	Inspector's Signature _____	Date _____

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HRSD DAILY COATING INSPECTION REPORT FOR THIRD PARTY INSPECTORS (fill out by hand)

Project/Client:	Date:	Page # _____ of _____
Location:	Project #:	Copy to: <input type="checkbox"/> Office <input type="checkbox"/> Client <input type="checkbox"/> Proj. Mgr. <input type="checkbox"/> _____ <input type="checkbox"/> _____ <input type="checkbox"/> _____
Description:	Inspector:	
Requirements:	Inspection Company:	
Contractor:		
	Spec #:	Revision #:

DESCRIPTION OF AREAS & WORK PERFORMED

HOLD POINT INSPECTIONS PERFORMED	
<input type="checkbox"/> Weather and site conditions <input type="checkbox"/> Pre surface prep/condition & cleanliness <input type="checkbox"/> Surface preparation monitoring <input type="checkbox"/> Post surface prep/cleanliness & profile	<input type="checkbox"/> Application monitoring/wet film thickness (WFT) <input type="checkbox"/> Post application/application defects <input type="checkbox"/> Post cure/dry film thickness (DFT) <input type="checkbox"/> Corrective actions follow up & final inspection
APPROVED BY: _____ (Inspector's Name)	

SURFACE CONDITIONS			
<input type="checkbox"/> New <input type="checkbox"/> Maint <input type="checkbox"/> Age <input type="checkbox"/> Dry <input type="checkbox"/> Cure <input type="checkbox"/> Concrete <input type="checkbox"/> Steel <input type="checkbox"/> Galvanized	<input type="checkbox"/> Primer <input type="checkbox"/> Paint <input type="checkbox"/> Dry To Touch <input type="checkbox"/> Dry to Handle <input type="checkbox"/> Dry to Recoat Fall Out _____ Sample Report # _____	<input type="checkbox"/> Weld <input type="checkbox"/> Scale <input type="checkbox"/> Pitting/Holes <input type="checkbox"/> Crevices <input type="checkbox"/> Sharp Edges <input type="checkbox"/> Pinholes <input type="checkbox"/> Runs/Sags <input type="checkbox"/> Holidays <input type="checkbox"/> Abrasions	<input type="checkbox"/> Dry/Overspray Cl _____ ug/cm ² /ppm Fe _____ ppm pH _____ Hazard _____ Moisture/Oils _____ Degree of Contamination _____ Degree of Corrosion _____ Painted Surface Condition _____

AMBIENT CONDITIONS				SURFACE PREPARATION					
Areas: _____				Start Time _____		Finish Time _____		Area ft ² /m ² _____	
Time _____				<input type="checkbox"/> Solvent Clean		Blast Hose Size _____			
Wet bulb temp° C/F _____				<input type="checkbox"/> Hand Tool		Nozzle Size/PSI _____			
Surf temp° C/F Min/Max _____				<input type="checkbox"/> Power Tool		Air Supply CFM _____			
Wind direction/speed _____				HP Wash PSI _____		<input type="checkbox"/> Air Supply Clean			
Dry bulb temp° C/F _____				<input type="checkbox"/> Abrasive Blast		<input type="checkbox"/> Water/Oil Trap Check			
% Relative humidity _____%				Abrasive Type _____		<input type="checkbox"/> Equip Condition Check			
Dew point temp° C/F _____				<input type="checkbox"/> Abrasive Sample		Water Blasting _____			
Weather conditions: _____									

APPLICATION			
Start Time: _____	Finish Time: _____	Area _____ ft ² /m ²	Batch Numbers:
<input type="checkbox"/> Primer	Qty Mixed _____	Achieved WFT _____ mils/um	(A) _____
<input type="checkbox"/> Intermediate	Mix Ratio _____	<input type="checkbox"/> Airless/Conv	(B) _____
<input type="checkbox"/> Topcoat	Mix Method _____	<input type="checkbox"/> Brush	(C) _____
<input type="checkbox"/> Touch-up	Strain/Screen _____	<input type="checkbox"/> Roller	Reducer _____
Generic Type _____	Material Temp _____	<input type="checkbox"/> Primer	
Manufacturer _____	Induction Time _____	<input type="checkbox"/> Pump/Pot	GPM/CFM _____
Product Name _____	Pot Life _____	Hose Diameter _____	<input type="checkbox"/> Spray Gun
Product # _____	Reducer # _____	Hose Length _____	<input type="checkbox"/> Filter
Color _____	Quantity Added _____	<input type="checkbox"/> Air Check	PSI _____
Kit Size/Condition _____	% By Volume _____%	<input type="checkbox"/> Trap	Tip Size _____
Shelf Life _____	Specified WFT _____ mils/um	Ratio/Size _____	<input type="checkbox"/> Agitator

SURFACE CLEANLINESS & PROFILE MEASUREMENT			
Job Spec. NACE/SSPC-SP- _____		NACE/SSPC SPEC/Visual Stds _____	
Profile Check: Disc _____	Tape _____	Gauge _____	Specified _____ mils/um
Surface Effect on D.F.T. Gauge/BMR/ _____ mils/um		Achieved _____ mils/um	

D.F.T. GAUGE CALIBRATION		
Gauge Type/Model _____	Gauge Serial # _____	Gauge Calib Verified _____
Specified Avg. D.F.T. _____	Avg. D.F.T. this Coat _____	Avg. D.F.T. last Coat _____
Total Avg. D.F.T. _____		

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Inspector's Name _____ Inspector's Signature _____ Date _____

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DFT MEASUREMENT WORKSHEET							
Project/Client:			Date:			Page # of	
Location:			Project #:			Copy to : <input type="checkbox"/> QC Manager <input type="checkbox"/> Client <input type="checkbox"/> Project Manager <input type="checkbox"/>	
Description:			Inspector:				
			Inspection Company:				
			Spec #:			Revision #:	
ITEM:							
Location	Area	Spot Readings					
		1	2	3	Total	%Min	Avg
	A						
	B						
	C						
	D						
	E						
Approximately	ft ² /m ²	Specified DFT			mils/um	Total Avg	mils/um
Reference Inspection Report # _____ for application record							
ITEM:							
Location	Area	Spot Readings					
		1	2	3	Total	%Min	Avg
	A						
	B						
	C						
	D						
	E						
Approximately	ft ² /m ²	Specified DFT			mils/um	Total Avg	mils/um
Reference Inspection Report # _____ for application record							
ITEM:							
Location	Area	Spot Readings					
		1	2	3	Total	%Min	Avg
	A						
	B						
	C						
	D						
	E						
Approximately	ft ² /m ²	Specified DFT			mils/um	Total Avg	mils/um
Reference Inspection Report # _____ for application record							
ITEM:							
Location	Area	Spot Readings					
		1	2	3	Total	%Min	Avg
	A						
	B						
	C						
	D						
	E						
Approximately	ft ² /m ²	Specified DFT			mils/um	Total Avg	mils/um
Reference Inspection Report # _____ for application record							
D.F.T. GAUGE CALIBRATION RECORD							
Gauge Type Model	Gauge Serial #	Plate/ Shim mils/um	BMR	Adjust +/-	Spec. Average Coat	D.F.T. This Coat	D.F.T. Last Coat
Inspector's Name _____			Inspector's Signature _____			Date _____	

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HRSD DAILY COATING INSPECTION REPORT FOR THIRD PARTY INSPECTORS (fill out electronically)

DFT MEASUREMENT WORKSHEET							
Project/Client:			Date:			Page # of	
Location:			Project #:			Copy to : <input type="checkbox"/> QC Manager <input type="checkbox"/> Client <input type="checkbox"/> Project Manager <input type="checkbox"/>	
Description:			Inspector:			Revision #:	
			Inspection Company:				
			Spec #:				
ITEM:							
Location	Area	Spot Readings					
		1	2	3	Total	%Min	Avg
	A						
	B						
	C						
	D						
	E						
Approximately ft ² /m ²		Specified DFT mils/um			Total Avg mils/um		
Reference Inspection Report # for application record							
ITEM:							
Location	Area	Spot Readings					
		1	2	3	Total	%Min	Avg
	A						
	B						
	C						
	D						
	E						
Approximately ft ² /m ²		Specified DFT mils/um			Total Avg mils/um		
Reference Inspection Report # for application record							
ITEM:							
Location	Area	Spot Readings					
		1	2	3	Total	%Min	Avg
	A						
	B						
	C						
	D						
	E						
Approximately ft ² /m ²		Specified DFT mils/um			Total Avg mils/um		
Reference Inspection Report # for application record							
ITEM:							
Location	Area	Spot Readings					
		1	2	3	Total	%Min	Avg
	A						
	B						
	C						
	D						
	E						
Approximately ft ² /m ²		Specified DFT mils/um			Total Avg mils/um		
Reference Inspection Report # for application record							
D.F.T. GAUGE CALIBRATION RECORD							
Gauge Type Model	Gauge Serial #	Plate/ Shim mils/um	BMR	Adjust +/-	Spec. Average Coat	D.F.T. This Coat	D.F.T. Last Coat
Inspector's Name		Inspector's Signature				Date	

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Corrective Actions Report (fill out electronically)**

Project/client:			Date:			Page # of	
Location:			Project #:			Copy to:	
Description:			Inspector:			<input type="checkbox"/> QC Manager	
Requirements:			Inspection Company:			<input type="checkbox"/> Client	
Contractor:						<input type="checkbox"/> Project Manger	
						<input type="checkbox"/>	
			Spec #:			Attachments	
			Revision #:			<input type="checkbox"/> Stop Work Order	
						<input type="checkbox"/>	
TIME & LOCATION			NAME/COMPANY/TITLE				
DESCRIPTION OF NONCONFORMING ITEM			DESCRIPTION OF NONCONFORMANCE				
REFERENCED: SPECIFICATION/PROCEDURE/STANDARD			ACTION LEVEL				
DISCUSSION & RECOMMENDATIONS							
APPROVAL & CORRECTIVE ACTIONS							
CORRECTIVE ACTIONS FOLLOW UP							
FINAL APPROVAL:							
SIGNATURE		TITLE		DATE		INSPECTOR'S SIGNATURE	
						DATE	

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Corrective Actions Report (fill out by hand)**

Project/client:	Date:	Page # ____ of ____
Location:	Project #:	Copy to: <input type="checkbox"/> QC Manager
Description:	Inspector:	<input type="checkbox"/> Client
Requirements:	Inspection Company:	<input type="checkbox"/> Project Manger
Contractor:		<input type="checkbox"/> _____
	Spec #:	Attachments <input type="checkbox"/> Stop Work Order
	Revision #:	<input type="checkbox"/> _____
TIME & LOCATION	NAME/COMPANY/TITLE	
DESCRIPTION OF NONCONFORMING ITEM	DESCRIPTION OF NONCONFORMANCE	
REFERENCED: SPECIFICATION/PROCEDURE/STANDARD	ACTION LEVEL	
DISCUSSION & RECOMMENDATIONS		
APPROVAL & CORRECTIVE ACTIONS		
CORRECTIVE ACTIONS FOLLOW UP		
FINAL APPROVAL:		
SIGNATURE	TITLE	DATE
INSPECTOR'S SIGNATURE		DATE

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HRSD DAILY COATING INSPECTION REPORT FOR THIRD PARTY INSPECTORS (fill out by electronically)

PHOTOGRAPH RECORD			
PROJECT/CLIENT:		Date:	
LOCATION:		Project #:	
CAMERA TIME/DATE VERIFIED: <input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> N/A		Inspector:	
PERMISSION REQ: <input type="checkbox"/> YES <input type="checkbox"/> NO		Inspection Company:	
FILM DEVELOPER:			
#:		DATE:	
CAMERA:	EXPOSURES:	DISK#:	
#	LOCATION	AREA	COMMENT
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			
21			
22			
23			
24			
25			
26			
27			
28			
29			
30			
31			
32			
33			
34			
35			
36			
NUMBER ON FORM MUST MATCH WITH PICTURE			
_____ Inspector's Name		_____ Inspector's Signature Date	

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One report must be filled out and signed by the inspector for each shift while coatings work is being performed. The inspector need only fill out the sheet or information on any given sheet pertinent to the work actually being performed on the respective shift. Digital Photographs must be taken and described on the log for each shift. The photographs must document the work being performed and include close-ups of the work inspected such as degree of cleanliness, wet film thickness, etc.

B. Mandatory Inspection Hold Points

At various key stages of coatings work, inspections should be made to ensure that the proper quality of previous portions of the work has been achieved prior to the Contractor's personnel proceeding with the work. These key stages are called Hold Points. They refer to stages of the work when the Contractor should stop to permit a careful inspection by the Third Party Inspector prior to progressing. In other words, hold for inspection at key points in the work. The Mandatory Hold Points for all Coatings Projects inspected by third party inspectors are as follows:

1. Environment and Site Conditions – Have the weather or environmental conditions within the structure been checked for compliance with the coating work? This involves ambient air and humidity checks as well as checks on site conditions such as proper protective measures for surfaces not to be coated and safety requirements for personnel.
2. Pre-Surface Preparation – Checking of pre-surface preparation conditions. Can the proposed surface preparation method remove existing coatings and/or contaminants? Check to see if substrate repairs will be necessary to move forward. Is the substrate contaminated with oil or grease or soluble salts, etc.?
3. Monitoring of Surface Preparation – Spot checking of degree of cleanliness, surface profile, and surface pH testing, where applicable. Also, the cleanliness of compressed air should be checked for lack of oil and moisture.
4. Post Surface Preparation – Measure and inspect for proper degree of cleanliness and surface profile as specified in Section 7 and the Coating System Guidelines for the project.
5. Monitoring of Coatings Application – This is mainly checks on wet film thickness and general film quality (visual inspection) for lack of runs, sags, pinholes, holidays, etc. as the application work proceeds.
6. Post Application Inspection – Identify any defects in application work including pinholes, holidays, excessive runs or sags, and any other problems such as inadequate or excessive film thickness areas.
7. Post Cure Evaluation – This includes an overall Dry Film Thickness Survey, and adhesion testing, Holiday Detection, or cure testing as required based on the type of project and the specific requirements in the specifications in Section 7.

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8. Follow-up to Corrective Actions and Final Inspection. This involves reinspection of all corrective coating work performed by the Contractor to repair defects identified at prior Hold Points F or G. This activity also combines with it the final careful visual inspection along with any follow-up tests like holiday detection, DFT surveys, etc.

The Third Party Inspector is responsible for following and checking off the Hold Point Inspection Checklist (that follows below) for all HRSD Coatings Projects.

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HRSD HOLD POINT INSPECTION CHECKLIST FOR COATINGS PROJECTS

(to be filled out Electronically)

HRSD Facility: _____

HRSD Location: _____

Project Description: _____

Inspector's Name: _____

1. Environment and Site Conditions Checks

Date

- a. Will the environmental conditions be suitable for application and cure of the coating system(s)?
- b. Will the environmental conditions prevent flash rusting of steel surfaces?
- c. Will the site conditions be acceptable for the surface preparation methods, i.e. protection of other surfaces not to be prepared?
- d. Will the site conditions be acceptable for coating system application? Have surfaces not to be coated been protected?
- e. Can the work be safely accomplished under the actual site conditions?

2. Pre-Surface Preparation Checks

Date

- a. Can the specified surface preparation methods remove the existing coatings and/or substrate contaminants?
- b. Does the substrate require repair or restoration before the coating system can be applied?
- c. Will the surface preparation methods remove the loose or degraded concrete, masonry, or corrosion products as required for coating system application?
- d. Is the substrate contaminated with oil, grease or soluble salts?

3. Monitoring of Surface Preparation

Date

- a. Has the degree of cleanliness been achieved?
- b. Has the Contractor inspected for degree of cleanliness and surface profile and recorded the findings as specified in Section 7?
- c. Has the surface profile specified been achieved?
- d. Has the surface pH been checked and has it met the specified results?
- e. Has the compressed air been checked for the absence of oil or moisture? Were the results acceptable?

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4. Post Surface Preparation Checks

Date

- a. Have the specified degree of cleanliness, surface profile, and surface pH measurement been achieved in the field?
- b. If there are unacceptable areas of surface preparation, have they been identified and corrected?

5. Monitoring of Coatings Application

Date

- a. Has the wet film thickness been checked and does it meet the specified requirements? If the WFT is difficult to measure, has the proper coating coverage been achieved?
- b. Is the coating system film quality good or are there too many runs, sags, pinholes, holidays, etc.? Please be specific.
- c. Is the proper equipment being used for coating system application?
- d. Is the application equipment being used properly?

6. Post Application Checks

Date

- a. Are there any defects in the applied coating system such as pinholes, holidays, excessive runs or sags, cracks, color variations, embedded dirt or other debris, or other problems? Be specific. _____
- b. Are there areas of excessive film thickness or inadequate film thickness in the coating work? Be specific by location. _____

7. Post Cure Checks

Date

- a. Has an overall DFT survey been performed and what are the results? What was the DFT average and range of DFT readings? Is corrective action required to achieve the specified DFT ranges for the coating system?
- b. Was adhesion testing necessary? If yes, what were the results? Be specific by location. _____
- c. If adhesion test results were below acceptable limits, what corrective action will be taken? _____
- d. Has proper cure of the coating system been checked? If there were problems, what will be the corrective action? Be specific. _____
- e. Was holiday detection required for this coatings work? If so, what were the results? Be specific by location. If there were problems, what will be the corrective action plan? _____

8. Follow-up To Corrective Actions/Final Inspection

Date

- a. Have all defects identified by the inspection steps above been corrected or repaired properly?
- b. If yes, have all corrected defects been reinspected and confirmed as meeting the specification requirements?

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HRSD HOLD POINT INSPECTION CHECKLIST FOR COATINGS PROJECTS

(to be Handwritten)

HRSD Facility: _____

HRSD Location: _____

Project Description: _____

Inspector's Name: _____

1. Environment and Site Conditions Checks

Date

_____ a. Will the environmental conditions be suitable for application and cure of the coating system(s)?

_____ b. Will the environmental conditions prevent flash rusting of steel surfaces?

_____ c. Will the site conditions be acceptable for the surface preparation methods, i.e. protection of other surfaces not to be prepared?

_____ d. Will the site conditions be acceptable for coating system application? Have surfaces not to be coated been protected?

_____ e. Can the work be safely accomplished under the actual site conditions?

2. Pre-Surface Preparation Checks

Date

_____ a. Can the specified surface preparation methods remove the existing coatings and/or substrate contaminants?

_____ b. Does the substrate require repair or restoration before the coating system can be applied?

_____ c. Will the surface preparation methods remove the loose or degraded concrete, masonry, or corrosion products as required for coating system application?

_____ d. Is the substrate contaminated with oil, grease or soluble salts?

3. Monitoring of Surface Preparation

Date

_____ a. Has the degree of cleanliness been achieved?

_____ b. Has the Contractor inspected for degree of cleanliness and surface profile and recorded the findings as specified in Section 7?

_____ c. Has the surface profile specified been achieved?

_____ d. Has the surface pH been checked and has it met the specified results?

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_____ e. Has the compressed air been checked for the absence of oil or moisture? Were the results acceptable?

4. Post Surface Preparation Checks

Date

_____ a. Have the specified degree of cleanliness, surface profile, and surface pH measurement been achieved in the field?

_____ b. If there are unacceptable areas of surface preparation, have they been identified and corrected?

5. Monitoring of Coatings Application

Date

_____ a. Has the wet film thickness been checked and does it meet the specified requirements? If the WFT is difficult to measure, has the proper coating coverage been achieved?

_____ b. Is the coating system film quality good or are there too many runs, sags, pinholes, holidays, etc.? Please be specific.

_____ c. Is the proper equipment being used for coating system application?

_____ d. Is the application equipment being used properly?

6. Post Application Checks

Date

_____ a. Are there any defects in the applied coating system such a pinholes, holidays, excessive runs or sags, cracks, color variations, embedded dirt or other debris, or other problems? Be specific.

_____ b. Are there areas of excessive film thickness or inadequate film thickness in the coating work? Be specific by location.

7. Post Cure Checks

Date

_____ a. Has an overall DFT survey been performed and what are the results? What was the DFT average and range of DFT readings? Is corrective action required to achieve the specified DFT ranges for the coating system?

_____ b. Was adhesion testing necessary? If yes, what were the results? Be specific by location.

_____ c. If adhesion test results were below acceptable limits, what corrective action will be taken?

_____ d. Has proper cure of the coating system been checked? If there were problems, what will be the corrective action? Be specific.

_____ e. Was holiday detection required for this coatings work? If so, what were the results? Be specific by location. If there were problems, what will be the corrective action plan?

8. Follow-up To Corrective Actions/Final Inspection

Date

_____ a. Have all defects identified by the inspection steps above been corrected or repaired properly?

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_____ b. If yes, have all corrected defects been reinspected and confirmed as meeting the specification requirements?

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C. Level of Inspection Effort

The level of inspection effort on HRSD Coatings Projects where Third Party Inspectors are used must always be thorough and routine. This does not mean a full-time presence is always warranted, but rather all Hold Points must be exercised and enforced on a representative portion of all of the coatings work. This means the level of inspection effort must be sufficiently intensive to cover all major aspects of the coatings work that can affect the quality of the work and the long-term performance of the coating system(s). This level of effort must include thorough written and photographic documentation of the coatings work. All photographs must be digital and a disk as well as printed color hard copies of the photographs must be submitted with each daily report. All daily reports are due and shall be submitted to the Third Party Inspector's HRSD Contact on the morning following the shift covered by any given report unless otherwise instructed by HRSD.

9.5 Third Party Inspection Equipment Requirements

All Third Party Inspectors used on HRSD Coatings Projects must provide all of the necessary inspection tools, instruments, references, standards, and other materials required to perform the necessary inspection tasks. Also, the Third Party Inspector must provide documentation verifying that all dry film thickness gauges and other instruments requiring routine calibration have been factory calibrated or field calibrated within the prescribed time frames by the applicable equipment manufacturers.

All visual standards and written references used by third party inspectors must be the most current versions. As a minimum, all third party inspectors must be able to provide the following:

- Surface thermometer.
- Sling or digital psychrometer.
- Digital thermometer.
- Hypodermic needle on pressure gauge for blast cleaning air pressure checks.
- White blotter paper.
- SSPC-VIS-1, Visual Standards for Blast Cleaned Steel.
- A 5-in-1 tool.
- SSPC-VIS-2, Visual Standard for Evaluating the Degree of Rusting on Painted Steel Surfaces.

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- SSPC-VIS-3, Visual Standard for Power or Hand Tool Cleaned Steel.
- SSPC-VIS-4, Visual Standard for Degrees of Cleaning for Steel Surfaces Prepared by Waterjetting.
- SSPC-VIS-5, Visual Standard for Steel Surfaces Prepared by Wet Abrasive Blast Cleaning.
- Replica Tape and Spring Micrometer for Surface Profile.
- Portable Adhesion Tester and all related dollies and glue, etc.
- Copy of ICRI 03722 plus Rubber Replicas of various levels of Concrete Surface Profiles (CSPs).
- pH indicating papers or pencils for measuring surface pH plus bottle of distilled H₂O.
- Clean white rags – for testing for surface cleanliness.
- Pressure sensitive tape.
- Surface contamination test kit for soluble salt testing of steel or other metal substrates.
- Copy of ASTM D4263 – Plastic Sheet Test and plastic and tape for conducting this concrete substrate moisture test.
- Wet Film Thickness Gauges for varied coating system thicknesses.
- A DFT Gauge, most likely a magnetic DFT gauge for ferrous metals and an eddy current type gauge for non-ferrous metals.
- An electronic DFT gauge for concrete substrates.
- A Tooke Gauge for destructive DFT measurements.
- A copy of ASTM D3359 for Adhesion Testing using tape plus the tape and a razor knife.
- Holiday Detection Equipment for high or low voltage pinhole or discontinuity testing.
- A Solvent Rub Kit for checking coating system cure.
- The Inspection of Coatings and Linings, a handbook from SSPC – Second Edition.

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- Copies of various SSPC and NACE references and standards documents including, but not limited to the following:
 - ASTM E-337, Determining Relative Humidity and Dew Point.
 - ASTM D4417, Determining Surface Profile of Blast Cleaned Steel Using Replica Tape.
 - ASTM D4541, Surface Tensile Strength Testing of Concrete and Tensile Pull Adhesion of Coatings.
 - ASTM D4262, Determining pH Using Test Strip.
 - ASTM F1869, Measuring Moisture Vapor Emission Rate Using Anhydrous Calcium Chloride.
 - SSPC-PA-2, Measuring Dry Film Thickness Using Type 1 Magnetic Pull-Off Gauges or Type 2 Constant Pressure Probe Gauges.
 - ASTM D1400, Measuring Dry Film Thickness Using Eddy Current Gauges.
 - ASTM D4138, Measuring Dry Film Thickness By Destructive Means.
 - ASTM D5162 and NACE RP0188-90, Holiday Testing of Coatings on Metals – Low Voltage and High Voltage Methods.
 - ASMT D4787, Holiday Testing of Coatings on Concrete.

SSPC-SP 1	Solvent Cleaning.
SSPC-SP 2	Hand Tool Cleaning
SSPC-SP 3	Power Tool Cleaning
SSPC-SP 5	White Metal Blast Cleaning
SSPC-SP 6	Commercial Blast Cleaning
SSPC-SP 7	Brush Off Blast Cleaning
SSPC-SP 10	Near White Blast Cleaning
SSPC-SP 11	Power Tool Cleaning to Bare Metal
SSPC-SP 12	Surface Preparation and Cleaning of Metals Prepared by Waterjetting
SSPC-SP 13	Surface Preparation of Concrete
SSPC-SP 14	Industrial Blast Cleaning
SSPC-SP 15	Commercial Grade Power Tool Cleaning
ICRI	Technical Guideline 03730 – Guide for Surface Preparation

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For the Repair of Deteriorated Concrete Resulting From
Reinforcing Steel Corrosion.

9.6 Purchasing Third Party Inspection Services

When purchasing Third Party Inspection Services for HRSD Coatings Projects, use the Third Party Inspection Services Form in conjunction with the Purchase Requisition. Fill out the information in all of the blank lines colored blue. The Third Party Inspection Firm will be required to fill out the lines colored in red. Submit this filled out form and all required attachments from this coatings manual with the Purchase Requisition to HRSD Purchasing.

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THIRD PARTY INSPECTION SERVICES FORM
(to be filled out electronically)

HRSD Project No.: _____

Project Description: _____

Project Location: _____

Name of HRSD Point of Contact : _____

Tel. No.: _____

Email address: _____

Third Party Inspection Company Name: _____

Address: _____

Contact Person Name: _____

Tel. No.: _____

Fax No.: _____

Email address: _____

Third Party Inspector Names:

Attach resumes for each inspector's name submitted.

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THIRD PARTY INSPECTION SERVICES FORM - continued

Description of Scope of Inspection Services

Provide (number) of third party inspectors qualified in accordance with this Coatings Manual to perform Q.C. inspection of the work described above on a (full or part) time basis for (number) of days. The inspection work must be performed between (hours) a.m./p.m. and (hours) a.m./p.m. each day during (weekdays only) or (7 days per week). The inspection work includes documenting all inspection findings and observations using the standard HRSD Daily Coatings Inspection Report Form and the HRSD Mandatory Hold Point Inspection Checklist as required in Subsection 9.4 A. and B. of this Coatings Manual. See attached.

All Third Party Inspectors must meet the requirements of Subsection 9.3 of this Coatings Manual, Qualifications for Third Party Coatings Inspectors. **See attached Subsection 9.3 of this Coatings Manual.**

All Third Party Inspection work must be conducted in accordance with the requirements found under Subsection 9.4 C., Level of Inspection Effort of this Coatings Manual. **See attached Subsection 9.4.C of this Coatings Manual.**

All Third Party Inspectors used on HRSD Coatings Projects must be equipped at a minimum with all of the instruments, inspection tools, and referenced standards listed in Subsection 9.5 of this Coatings Manual and all equipment and reference documents must meet the requirements described therein. **See attached Subsection 9.5 of this Coatings Manual.**

These inspection services will commence on (date) and be completed on (date). Please provide pricing for these services as required below:

- All-Inclusive Hourly Rates per hour.
\$_____ per hour straight time.
\$_____ per hour overtime (over 40 hours per work week)
- Flat Daily Rate for Inspection Services.
\$_____ per day.
- Flat Weekly Rate for Inspection Services
\$_____ per 40 hour week
- Flat Monthly Rate for Inspection Services
\$_____ per 160 hours month

All rates must include the costs of living, meals travel, lodging, home office support, provision of all inspection instruments, equipment, and other materials, all HRSD required insurance coverage, and all transportation, etc. No additional charges will be accepted or paid. All working hours will be based on sign-in/sign-out times at HRSD Facilities or contact times made at the start and end of the shift worked with the HRSD Point of Contact.

HRSD Project No.: _____

Project Description: _____

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THIRD PARTY INSPECTION SERVICES FORM
(to be filled out by hand)

HRSD Project No.: _____

Project Description: _____

Project Location: _____

Name of HRSD Point of Contact: _____

Tel. No.: _____ Email address: _____

Third Party Inspection Company Name: _____

Address: _____

Contact Person Name: _____

Tel. No.: _____ Fax No.: _____

Email address: _____

Third Party Inspector Names: _____

Attach resumes for each inspector's name submitted.

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THIRD PARTY INSPECTION SERVICES FORM - *continued*

Description of Scope of Inspection Services

Provide _____ (number) of third party inspectors qualified in accordance with this Coatings Manual to perform Q.C. inspection of the work described above on a _____ (full or part) time basis for _____ (number) of days. The inspection work must be performed between _____ a.m./p.m. (hours) and _____ a.m./p.m. (hours) each day during _____ (weekdays only) or _____ (7 days per week). The inspection work includes documenting all inspection findings and observations using the standard HRSD Daily Coatings Inspection Report Form and the HRSD Mandatory Hold Point Inspection Checklist as required in Subsection 9.4 A. and B. of this Coatings Manual. See attached.

All Third Party Inspectors must meet the requirements of Subsection 9.3 of this Coatings Manual, Qualifications for Third Party Coatings Inspectors. See attached hereto.

All Third Party Inspection work must be conducted in accordance with the requirements found under Subsection 9.4 C., Level of Inspection Effort of this Coatings Manual. See attached.

All Third Party Inspectors used on HRSD Coatings Projects must be equipped at a minimum with all of the instruments, inspection tools, and referenced standards listed in Subsection 9.5 of this Coatings Manual and all equipment and reference documents must meet the requirements described therein. See attached.

Attach copies of Subsections 9.3, 9.4, and 9.5 of this Coatings Manual to this Form.

These inspection services will commence on _____ (date) and be completed on _____ (date). Please provide pricing for these services as required below:

- All-Inclusive Hourly Rates per hour.
\$ _____ per hour straight time.
\$ _____ per hour overtime (over 40 hours per work week)
- Flat Daily Rate for Inspection Services.
\$ _____ per day.
- Flat Weekly Rate for Inspection Services
\$ _____ per 40 hour week
- Flat Monthly Rate for Inspection Services
\$ _____ per 160 hours month

All rates must include the costs of living, meals, travel, lodging, home office support, provision of all inspection instruments, equipment, and other materials, all HRSD required insurance coverage, and all transportation, etc. No additional charges will be accepted or paid. All working hours will be based on sign-in/sign-out times at HRSD Facilities or contact times made at the start and end of the shift worked with the HRSD Point of Contact.