

# 2008 RESNET Building Performance Conference

## Session 4

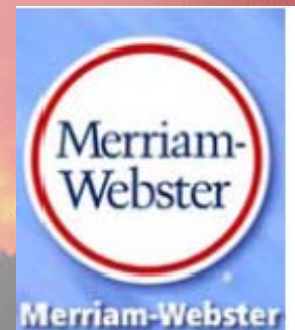
# Meeting the RESNET Provider Quality Assurance Monitoring Challenge

**Prepared by:**  
**EAM Associates, Inc.**  
Wall, New Jersey  
February 19, 2008



# What is Quality Assurance ("QA")?

- QA is defined as: "a program for the systematic monitoring and evaluation of the various aspects of a project, service, or facility to ensure that standards of quality are being met".
- EAM views QA as a tool to determine or confirm our work products and services meet or exceed our customer and industry expectations.
- EAM has adopted QA as a process-driven approach with specific steps to attain our goals.
- Creating a Process, and sticking with it.



# What EAM Does

- REM Analysis review: It doesn't have to be perfect, just close to it – 10% minimum
- Field Review: 1% is the minimum
- Compare results side by side – also take into account what is or is not missing from reports
- Discuss findings – Good and Bad – Honesty is the best policy
- Keep records – you may want or need them for future reference



# Tracking & Reporting Tools

Rater Name: \_\_\_\_\_

Tracking Number: \_\_\_\_\_

Date Reviewed: \_\_\_\_\_

Reviewed By: \_\_\_\_\_

	Quality Control Item		Correct	Incorrect
1	Electronic File in Proper Location			
2	Site Location			
3	Utilities			
4	Address			
5	Energy Rating Information			
6	Area and Volume			
7	Foundation			
8	Slab			
9	Frame Floor			
10	Above Grade Walls	Insulation		
11		Color		
12	Ceilings	Insulation		
13		Radiant Barrier		
14		Color		
15	Windows:	Values		
16		Orientation		
17		Wall Assignment		
18	Doors			
19	Heating Equipment:	Size		
20		Efficiency		
21	Cooling Equipment:	Size		
22		Efficiency		
23	Hot Water Heater:	Size		
24		Efficiency		
25	Duct Properties:	Location		
26		Insulation		
27		Distribution		
28		Leakage		
29	Infiltration			
30	Mechanical Ventilation			
31	Ventilation Strategy for Cooling			

Rebate Work-Sheet			
Correct	Incorrect		
		Rebatable Square Ftg	
Notes & Documentation			
		ARI Numbers	
Capacity			
		Lighting & Appliances	
Mechanical Vent.			

REM AREA vs PLANS	
Correct	Incorrect

Comments:



# Tracking & Reporting Tools

EAM 2006 RATER PRODUCTIVITY TRACKING REPORT

Rater	Inspection Type	Status	Jan	Feb	March	1st 1/4	April	May	June	2nd 1/4	July	Aug	Sept	Third 1/4	Oct	Nov	Dec	4th 1/4	Annual Total	
APGAR	Pre Construction Mtg	NA	0	0	0	0	0	1	0	1	1	1	0	2	0	0	0	0	3	
	Pre-Drywall	Pass	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Fail	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	1
	Re- Pre Drywall	Pass	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Fail	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Mid Construction	Pass	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	1
		Fail	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Final	Pass	0	0.5	0	0.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0.5
		Fail	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Re-Final	Pass	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Fail	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Initial REM	NA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	REM Variation	NA	0	0	0	0	0	0	0	0	0	1	1	0	2	0	0	0	0	0
	Totals:			0	0.5	0	0.5	0	2	1	3	1	1	0	2	0	0	0	0	5.5

Rater	Inspection Type	Status	Jan	Feb	March	1st 1/4	April	May	June	2nd 1/4	July	Aug	Sept	Third 1/4	Oct	Nov	Dec	4th 1/4	Annual Total	
GISSUBEL	Pre Construction Mtg	NA	1	1	0	2	0	0	0	0	0	0	0	0	3	0	0	3	5	
	Pre-Drywall	Pass	37	49	73	159	52	31	42	125	60	124	12	196	9	7	7	23	503	
		Fail	6	0	0	6	10	2	2	14	3	13	0	16	0	0	0	0	0	36
	Re- Pre Drywall	Pass	6	1	0	7	3	5	1	9	4	10	3	17	1	0	0	0	1	34
		Fail	0	0	0	7	3	1	0	1	0	0	0	0	0	0	0	0	0	1
	Mid Construction	Pass	6	7	10	23	0	0	0	0	0	0	1	1	2	0	1	3	27	
		Fail	1	0	0	1	0	0	0	0	0	0	0	0	1	0	0	0	1	2
	Final	Pass	41	30	117	80	22	34	49	105	84	22	81	187	107	41	26	174	554	
		Fail	1	2	3	6	8	14	5	27	10	4	36	50	1	20	35	56	139	
	Re-Final	Pass	6	4	1	11	1	3	3	7	6	13	8	27	8	4	0	10	55	
		Fail	2	0	0	2	2	1	1	4	1	1	3	0	0	0	0	0	0	11
	Initial REM	NA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	REM Variation	NA	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	2	
	Totals:			109	94	104	307	88	91	103	292	168	187	144	499	130	72	69	271	1369

Rater	Inspection Type	Status	Jan	Feb	March	1st 1/4	April	May	June	2nd 1/4	July	Aug	Sept	Third 1/4	Oct	Nov	Dec	4th 1/4	Annual Total	
GOLDATE	Pre Construction Mtg	NA	1	2	0	3	0	0	0	1	0	0	0	2	0	0	0	2	6	
	Pre-Drywall	Pass	18	9	2	29	19	38	38	95	23	7	4	34	5	1	0	6	164	
		Fail	12	4	4	20	35	16	2	82	4	14	0	18	1	0	1	2	92	
	Re- Pre Drywall	Pass	1	0	2	3	15	1	2	18	0	2	1	3	0	0	2	2	26	
		Fail	0	0	0	0	14	4	0	16	1	1	0	2	0	0	0	0	20	
	Mid Construction	Pass	13	4	2	19	12	3	5	20	5	4	2	11	3	0	0	0	3	53
		Fail	4	2	0	6	1	1	1	3	0	1	0	1	0	0	0	0	10	
	Final	Pass	11	17.5	7	35.5	4	20	55	78	20	23	18	61	10	16	15.5	41.5	217	
		Fail	22	7	1	30	8	13	24	45	8	7	8	23	2	2	4	4	122	
	Re-Final	Pass	1	1	0	2	1	5	3	9	7	3	2	12	10	2	0	16	41	
		Fail	1	0	0	1	0	4	3	12	0	3	0	3	0	1	1	2	18	
	Initial REM	NA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	REM Variation	NA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	Totals:			84	46.5	18	148.5	110	104	138	352	68	65	35	168	31	22	27.5	80.5	749

Rater	Inspection Type	Status	Jan	Feb	March	1st 1/4	April	May	June	2nd 1/4	July	Aug	Sept	Third 1/4	Oct	Nov	Dec	4th 1/4	Annual Total	
STEEETS	Pre Construction Mtg	NA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	Pre-Drywall	Pass	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Fail	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Re- Pre Drywall	Pass	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Fail	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Mid Construction	Pass	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Fail	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Final	Pass	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Fail	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Re-Final	Pass	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Fail	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Initial REM	NA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	REM Variation	NA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	Totals:			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

# Tracking & Reporting Tools

Rater Name: \_\_\_\_\_ Inspection Type: \_\_\_\_\_  
 Tracking Number: \_\_\_\_\_ Date: \_\_\_\_\_  
 Project Name: \_\_\_\_\_ Weather Condition: \_\_\_\_\_

	Quality Control Item	Q/A	Rater
1	House ready for inspection		
2	Mechanicals installed and numbers noted		
3	Thermostats noted correctly		
4	Blower Door Numbers		
5	Duct Blaster Numbers		
6	Foundation Insulation		
7	Type of Foundation		
8	Ceiling Insulation (Blown)		
9	Floor over uncondnd space (crawl or basement) R-Value		
10	Insulation fully supported to subflr		
11	Supply/Return boxes to Drywall (to uncond.space)		
12	Recessed lighting to Drywall (to unconditioned space)		
13	Access/Door to Attic: Weatherstripped		
14	Insulated		
15	Above Grade Walls: Exterior Color		
16	Roof: Exterior Color		
17	Exterior Penetrations Sealed		
18	Orientation		
19	Structural Options verified		
20	Pass or Fail		
21	Review of Completed Paperwork		
22	Noted Site Problems Clearly:		
23	Discussed Issues on Site:		
24	Comments & Notes:		

Q/A Signature: \_\_\_\_\_

Date Reviewed with Rater: \_\_\_\_\_

# Tracking & Reporting Tools

EAM Associates  
REMRate Quality Assurance Documentation 2006

Rating Number/ID #	Builder Name	House Address	City	State	Zip	Rater Name	Date - Building File Reviewed by	QA Building File Reviewed? Y/N	QA Building File Review Date/Findings
D090-42-V-73CountryClub	Toll Brothers, Inc.	73 Country Club Drive	Monroe	NJ	08831	Don Gissubel	1/20/06	Y - 1/24/06	HWH efficiency incorrect
M090-357-V-4Opel	Farmingdale Woods, LLC	4 Opal Court	Jackson	NJ	08527	Don Gissubel	1/21/06	Y - 1/24/06	Color of Walls and Ceilings incorrect, SEER of A/C 13 instead of 13.5
M090-103-V-190Blackberry	Kallan/Spectrum Monroe, LLC	190 Blackberry Drive	Monroe	NJ	08831	Don Gissubel	1/22/06	Y - 1/31/06	Radiant Barrier entered when none
M090-103-V-188Blackberry	Kallan/Spectrum Monroe, LLC	188 Blackberry Drive	Monroe	NJ	08831	Don Gissubel	1/23/06	Y - 1/31/06	Good
D090-360-V-3Meredith	Toll Brothers, Inc.	3 Meredith Court	Freehold	NJ	08827	Don Gissubel	1/24/06	Y - 2/3/06	Ceiling color incorrect - Good otherwise
D090-571-V-1Meadowview	Paramount Homes	1 Meadow Run Court	Jackson	NJ	08527	Don Gissubel	1/25/06	Y - 2/7/06	Ceiling joist spacing incorrect - Good otherwise
D090-622-V-27Wilson	Lennar Corporation	27 Wilson Boulevard	Jackson	NJ	08527	Don Gissubel	1/26/06	Y - 2/7/06	Foundation type listed incorrectly
S04-107-JNG-V-18Streambank	Lennar Corporation	18 Streambank Drive	Howell	NJ	07731	Don Gissubel	1/27/06	Y - 2/8/06	Wall & ceiling color incorrect, duct distribution incorrect
090-391-V-57Crestview	Orleans Homebuilders	57 Crestview Drive	Clinton	NJ	08809	Don Gissubel	1/28/06	Y - 3/9/06	Good
090-391-V-58Crestview	Orleans Homebuilders	58 Crestview Drive	Clinton	NJ	08809	Don Gissubel	1/29/06	Y - 3/9/06	Doors not exact - Good
D090-714-V-18Keswick	M&M at Monroe Woods, LLC	18 Keswick Circle	Monroe	NJ	08831	Don Gissubel	1/30/06	Y - 3/15/06	HWH location incorrect - otherwise Good
M090-71-V-734S Mehar	Arya Properties	734 South Mehar Court	Toms River	NJ	08753	Don Gissubel	1/31/06	Y - 3/21/06	Electronic file in wrong location, but REM is Good
S04-181-JNG-V-195Brigantine	Lennar Corporation	195 Brigantine Boulevard	Waretown	NJ	08758	Don Gissubel	2/1/06	Y - 3/31/06	Electronic file in wrong location, Wall color incorrect, mech. Vent. not entered.
S04-181-JNG-V-187Brigantine	Lennar Corporation	187 Brigantine Boulevard	Waretown	NJ	08758	Don Gissubel	2/2/06	Y - 3/31/06	Mechanical Vent. not entered
S04-181-JNG-V-181Brigantine	Lennar Corporation	181 Brigantine Boulevard	Waretown	NJ	08758	Don Gissubel	2/3/06	Y - 3/31/06	Mechanical Vent. not entered
D090-495-V-13Sovereign	Toll Brothers, Inc. - Morris Hunt	13 Sovereign Dr.	Flanders	NJ	07836	Don Gissubel	2/4/06	Y - 3/31/06	Ceiling Color incorrect, HWH ef incorrect.
S04-113-JPS-V-1Sycamore	Heritage Manor Homes	1 Sycamore Road	Chatham	NJ	07928	Don Gissubel	2/5/06	Y - 4/4/06	Frame floor incorrect, Ceiling color incorrect, Duct Distribution incorrect
D090-42-V-135CountryClub	Toll Brothers, Inc. - Regency at Monroe	135 Country Club Drive	Monroe	NJ	08831	Don Gissubel	2/8/06	Y - 4/4/06	Color of Walls and Ceilings Incorrect, Framing spacing of ceiling incorrect.
D090-194-V-10CrestFruit	Paramount Homes	10 Crest Fruit Court	Manalapan	NJ	07726	Don Gissubel	2/7/06	Y - 4/17/06	Size of HWH incorrect - no effect on rating - good

1

# Tracking & Reporting Tools

EAM Associates  
RESNET Quality Assurance Documentation 2006

Rating Number/ID #	Builder Name	House Address	City	State	Zip	Rater Name	Date - Building File Reviewed	QA Building File Reviewed? Y/N	QA Building File Review Date/Findings	Date - House Field Tested by Rater	QA Field Reviewed? Y/N	QA Field Review Date/Findings
D090-42-V-73CountryClub	Toll Brothers, Inc.	73 Country Club Drive	Monroe	NJ	08831	Don Glasubel	1/20/06	Y - 1/24/06	HWH efficiency incorrect			
M090-367-V-4Opal	Farmingdale Woods, LLC	4 Opal Court	Jackson	NJ	08527	Don Glasubel	1/21/06	Y - 1/24/06	Color of Walls and Ceilings incorrect, SEER of A/C 13 instead of 13.5			
M090-103-V-190Blackberry	Kellan/Spectrum Monroe, LLC	190 Blackberry Drive	Monroe	NJ	08831	Don Glasubel	1/22/06	Y - 1/31/06	Radiant Barrier entered when none			
M090-103-V-188Blackberry	Kellan/Spectrum Monroe, LLC	188 Blackberry Drive	Monroe	NJ	08831	Don Glasubel	1/23/06	Y - 1/31/06	Good			
D090-360-V-3Meredith	Toll Brothers, Inc.	3 Meredith Court	Freshford	NJ	08827	Don Glasubel	1/24/06	Y - 2/3/06	Ceiling color incorrect - Good otherwise			
D090-571-V-1Meadowview	Paramount Homes	1 Meadow Run Court	Jackson	NJ	08527	Don Glasubel	1/25/06	Y - 2/7/06	Ceiling joist spacing incorrect - Good otherwise			
D090-622-V-27Wilson	Lennar Corporation	27 Wilson Boulevard	Jackson	NJ	08527	Don Glasubel	1/26/06	Y - 2/7/06	Foundation type listed incorrectly			
804-107-JNG-V-18Breambank	Lennar Corporation	18 Breambank Drive	Howell	NJ	07731	Don Glasubel	1/27/06	Y - 2/8/06	Wall & ceiling color incorrect, duct distribution incorrect			
090-391-V-57Crestview	Orleans Homebuilders	57 Crestview Drive	Clinton	NJ	08809	Don Glasubel	1/28/06	Y - 3/9/06	Good			
090-391-V-58Crestview	Orleans Homebuilders	58 Crestview Drive	Clinton	NJ	08809	Don Glasubel	1/28/06	Y - 3/9/06	Doors not exact - Good			
D090-714-V-18Kewick	MM at Monroe Woods, LLC	18 Kewick Circle	Monroe	NJ	08831	Don Glasubel	1/30/06	Y - 3/15/06	HWH location incorrect - otherwise Good			
M090-71-V-7346 Mehar	Aya Properties	734 South Mehar Court	Toms River	NJ	08753	Don Glasubel	1/31/06	Y - 3/21/06	Electronic file in wrong location, but REM is Good			
804-181-JNG-V-195Brigantine	Lennar Corporation	195 Brigantine Boulevard	Waretown	NJ	08758	Don Glasubel	2/1/06	Y - 3/31/06	Electronic file in wrong location, Wall color incorrect, mech. Vent. not entered			
804-181-JNG-V-187Brigantine	Lennar Corporation	187 Brigantine Boulevard	Waretown	NJ	08758	Don Glasubel	2/2/06	Y - 3/31/06	Mechanical Vent. not entered			
804-181-JNG-V-181Brigantine	Lennar Corporation	181 Brigantine Boulevard	Waretown	NJ	08758	Don Glasubel	2/3/06	Y - 3/31/06	Mechanical Vent. not entered			
D090-495-V-15Sovereign	Toll Brothers, Inc. - Morris Hunt	13 Sovereign Dr.	Flanders	NJ	07835	Don Glasubel	2/4/06	Y - 3/31/06	Ceiling Color incorrect, HWH ef incorrect			
804-113-JPG-V-18Bycamore	Heritage Manor Homes	1 Bycamore Road	Chatham	NJ	07928	Don Glasubel	2/5/06	Y - 4/4/06	Frame floor incorrect, Ceiling color incorrect, Duct Distribution incorrect			
D090-42-V-15CountryClub	Toll Brothers, Inc. - Regency at Monroe	155 Country Club Drive	Monroe	NJ	08831	Don Glasubel	2/6/06	Y - 4/4/06	Color of Walls and Ceilings incorrect, Framing spacing of ceiling incorrect			
D090-194-V-10CrestFruit	Paramount Homes	10 Crest Fruit Court	Manalapan	NJ	07726	Don Glasubel	2/7/06	Y - 4/17/06	Size of HWH incorrect - no effect on rating - good			
D090-194-V-15CrestFruit	Paramount Homes	15 Crest Fruit Court	Manalapan	NJ	07726	Don Glasubel	2/8/06	Y - 4/17/06	Color of ceilings incorrect - good			
D090-194-V-15Staymen	Paramount Homes	15 Staymen Court	Manalapan	NJ	07726	Don Glasubel	2/9/06	Y - 4/17/06	Color of ceilings incorrect, Duct leakage missing 1 system testing			
D090-194-V-7Staymen	Paramount Homes	7 Staymen Court	Manalapan	NJ	07726	Don Glasubel	2/10/06	Y - 4/17/06	Size of HWH incorrect - no effect on rating - good			
D090-484-V-20Boxwood	Cedar Village at Ocean, LLC	20 Boxwood Drive	Ocean	NJ	07712	Don Glasubel	2/11/06	Y - 4/18/06	Good			

1/29/2008

1



# Why QA is Important

QA demonstrates credibility - that the necessary precautions have been taken to offer “assurance” that the product or service is within or above nationally accepted standards.

# SUMMARY

- Establish QA objectives & processes to deliver desired results for both your company and RESNET
- Implement the QA Process developed – and make your raters aware of it
- Make sure you are (at a minimum) meeting the Industry standard for QA – RESNET
- Apply actions remediation if the QA results indicate it is needed.

# Questions and Answers

*Thank You!*

Ann Marie Apgar  
Technical Services Manager  
aapgar@eamenergy.com



EAM Associates, Inc.  
Wall, New Jersey 07719

732-556-9190 voice  
732-556-9195 fax

