Audubon Consulting and Testing, Inc. "A Building Science Company"



6/15/2018

# Avalon at The Beach Club

375 A. Beach Club Trail. Gulf Shores, AL





Attn: Mike Rice Beach Club Parcel #9 Condominium Owner's Association 925 Beach Club Trail. Gulf Shores, AL

RE: Project Report-Selective Zonal Whole Unit Air-Leakage Testing Avalon Tower at The Beach Club 375 A. Beach Club Trail. Gulf Shores, AL

Dear Mr. Rice,

Thank you, for the opportunity to provide our Project Report for the Selective Zonal Air-Leakage Testing to you and The Beach Club Parcel #9. This document will serve as the deliverable for the services requested by the client. Information gathered during the testing which is presented in this report may not address every location that may exist. We look forward to reviewing this document with you at your convenience.

Sincerely,

David W. Nichols III (Chief Operations Officer) Audubon Consulting and Testing, Inc. 698 E. Heinberg St., Suite 104 Pensacola, Florida 32502 <u>dnichols@audubontesting.com</u>

# Audubon Consulting and Testing, Inc. "A Building Science Company"



## Table of Contents:

Table of Contents	
Summary of Acquired Information	
Specimen Parameters	5
Comparative Test Results	6-13
Disclosures and Limitations	14



### Summary of Acquired Information:

#### 1. <u>Scope and Purpose:</u>

- 1.1. The intent of this comparative analysis is to quantify the energy cost savings that have been achieved through selective repairs to the exterior enclosure of the structure.
- 1.2. The scope of work involved testing (4) four individual units before and after the selective remediation project. The units were selected by their exposure to the exterior enclosure of the building.

#### 2. <u>Procedure:</u>

- 2.1. A single-point air-leakage test was performed on each unit before and after the exterior enclosure remediation project. Each unit's air leakage rate was determined by depressurizing the interior conditioned space to -50 Pa using a blower door apparatus.
- 2.2. The air-leakage rates for each unit were recorded prior to any remedial repairs to the structure and after the completion of the remediation project to determine the achieved air-leakage energy savings. The two leakage rates for each unit were compared and an energy cost savings for the entire structure was determined using localized environmental, energy cost, and material performance data.
- 3. <u>Results:</u>
  - 3.1. Air-Leakage Rates Before Remediation (Standard Air-Leakage Rate-O.4O cfm/ft<sup>2</sup>)

Test #	Unit #	Air-Leakage Rate	±% From "Standard"	Cost of Air-Leakage
1.1	A-101	O.93 cfm/ft <sup>2</sup>	+138%	\$ 308.00
2.1	A-PH-1	1.23 cfm/ft <sup>2</sup>	+210%	\$ 456.00
3.1	A-110	O.63 cfm/ft <sup>2</sup>	+58%	\$ 123.00
4.1	A-PH-7	O.57 cfm/ft <sup>2</sup>	+43%	\$ 262.00

3.2. Current Air-Leakage Rates: (Standard Air-Leakage Rate-O.4O cfm/ft<sup>2</sup>)

Test #	Unit #	Air-Leakage Rate	±% From "Standard"	Energy Savings/ Yr.
1.2	A-101	O.35 cfm/ft <sup>2</sup>	-12.5%	\$ 191.00
2.2	A-PH-1	O.36 cfm/ft <sup>2</sup>	-10%	\$ 283.00
3.2	A-110	O.36 cfm/ft <sup>2</sup>	-10%	\$ 62.00
4.2	A-PH-7	O.28 cfm/ft <sup>2</sup>	-30%	\$ 134.00

Audubon Consulting and Testing Inc. | 698 E. Heinberg St., Suite 104 | Pensacola, Florida 32502 Phone: 850.830.5348 | www.audubontesting.com



#### 4. Conclusion:

- 4.1. The air-leakage test results have concluded that the performance of the building's exterior enclosure has been restored to an ideal level. We estimate that the structure will achieve an "Air-Leakage Energy Cost Savings" that is between \$500,000.00-\$600,000.00 over the 20-year lifespan of the selected products. This estimate is based solely on the air-leakage energy cost differences and assumes that proper maintenance and repairs to the structure will maintain current leakage rates.
- 4.2. The additional monetary savings benefits of the selective remediation project have not been factored into this analysis. It is our belief, that the unaccounted-for performance values of the coating (i.e. Reflectivity, Conductivity, and Transmittance Values) will aid in further reducing energy, maintenance, and insurance costs to the structure.
- 4.3. We suggest that a predictive maintenance assessment is performed at the end of each seasonal thermal cycle to determine (if any) remedial repairs to the enclosure are necessary. These assessments will provide a periodic update as to the current performance of the enclosure and materials. This situational awareness can help mitigate the need for costly repairs and extend the lifespan of the applied products.

# Audubon Consulting and Testing, Inc. "A Building Science Company"



# Zonal-Specimen Parameters:

Specimen #1-Pa	irameters:
Unit Name:	A-101
Vertical Wall Composition:	EIFS Cladding-Gypsum Sheathing-Metal-Framed Walls
Fenestration Types:	Aluminum-Clad Sliding Glass Doors; Aluminum-Clad Punch Openings; Wood/Metal-Clad Outswing Access Doors
Floor/Ceiling Substrate Composition:	Slab-On-Grade; Post-Tensioned Concrete Deck
Mechanical and Ventilation Systems:	Individual 13 SEER HVAC; 6" Backflow Dampeners; 3" 25-CFM

Specimen	#2-Parameters:
Unit Name:	A-PH-1
Vertical Wall Composition:	EIFS Cladding-Gypsum Sheathing-Metal-Framed Walls
Fenestration Types:	Aluminum-Clad Sliding Glass Doors; Aluminum-Clad Punch Openings; Wood/Metal-Clad Outswing Access Doors
Floor/Ceiling Substrate Composition:	Post-Tensioned Concrete Deck
Mechanical and Ventilation Systems:	Individual 13 SEER HVAC; 6" Backflow Dampeners; 3" 25-CFM fans

Specimen #3-F	Parameters:
Unit Name:	A-1001
Vertical Wall Composition:	EIFS Cladding-Gypsum Sheathing-Metal-Framed Walls; Cast-In Place Concrete
Fenestration Types:	Aluminum-Clad Sliding Glass Doors; Aluminum-Clad Punch Openings; Wood/Metal-Clad Outswing Access Doors
Floor/Ceiling Substrate Composition:	Slab-On Grade; Post-Tensioned Concrete Deck
Mechanical and Ventilation Systems:	Individual 13 SEER HVAC; 6" Backflow Dampeners; 3" 25-CFM fans

Specimen #4-P	arameters:
Unit Name:	A-PH-7
Vertical Wall Composition:	EIFS Cladding-Gypsum Sheathing-Metal-Framed Walls; Cast-In Place Concrete
Fenestration Types:	Aluminum-Clad Sliding Glass Doors; Aluminum-Clad Punch Openings; Wood/Metal-Clad Outswing Access Doors
Floor/Ceiling Substrate Composition:	Post-Tensioned Concrete Deck
Mechanical and Ventilation Systems:	Individual 13 SEER HVAC; 6" Backflow Dampeners; 3" 25-CFM fans



Test #1Test #2Test File:Avalon Tower-FPT 1.2 (5-16-2018) 5/16/2018Test File:Avalon Tower-FPT 1.1 (9-5 Date of Test:Date of Test:5/16/2018Customer:The Beach Club Parcel #9 375A. Beach Club Trail 925 Beach Club Trail Gulf Shores, AlabamaCustomer:The Beach Club Parcel #9 375A. Beach Club Trail 925 Beach Club Trail Gulf Shores, AlabamaTest ResultsTest #1Test #2ChangePercent1.Airflow at 50 Pascals:1746 CFM4564 CFM2817 CFM161.4 % 4.94 ACH2.Leakage Areas: LBL ELA @ 4 Pa:96.0 in2251.0 in2155.0 in2161.4 %1.Estimated Annual Average71.2 CFM186.0 CFM114.8 CFM161.4 %2.Estimated Design Infiltration Rate:Winter:115.4 CFM301.6 CFM186.2 CFM161.4 %2.Estimated Design Infiltration Rate:Winter:115.4 CFM301.6 CFM151.9 CFM161.4 %2.Cost Estimates0.27 ACH0.70 ACH0.43 ACH161.4 %Cost EstimatesCost Estimated Costs of Air Leakage										
Test File: Avalon Tower-FPT 1.2 (5-16-2018) Date of Test: 5/16/2018Test File: Avalon Tower-FPT 1.1 (9-5 Date of Test: 9/5/2017Customer:The Beach Club Parcel #9 375A. Beach Club Trail 925 Beach Club Trail Gulf Shores, AlabamaTest #1Customer: The Beach Club Trail 925 Beach Club Trail Gulf Shores, AlabamaTest #2ChangePercentTest ResultsTest #1Test #2ChangePercent1. Airflow at 50 Pascals:1746 CFM4564 CFM2817 CFM161.4 %2. Leakage Areas: LBL ELA @ 4 Pa:96.0 in2251.0 in2155.0 in2161.4 %1. Estimated Annual Average Infiltration Rate:71.2 CFM186.0 CFM114.8 CFM161.4 %2. Estimated Design Infiltration Rate:0.20 ACH0.53 ACH0.33 ACH161.4 %2. Estimated Design Infiltration Rate:0.33 ACH0.85 ACH0.53 ACH161.4 %2. Estimated Design Infiltration Rate:0.27 ACH0.70 ACH0.43 ACH161.4 %Cost Estimates1. Estimated Costs of Air Leakage	Test #1				Test #2					
Customer: The Beach Club Parcel #9 375A. Beach Club Trail 925 Beach Club Trail Gulf Shores, Alabama Test Results Test Results Test #1 Test #2 Change Percent 1. Airflow at 50 Pascals: 1746 CFM 4564 CFM 2817 CFM 161.4 % 4.94 ACH 12.92 ACH 7.98 ACH 161.4 % 2. Leakage Areas: LBL ELA @ 4 Pa: 96.0 in2 251.0 in2 155.0 in2 161.4 % Infiltration Estimates 1. Estimated Annual Average 71.2 CFM 186.0 CFM 114.8 CFM 161.4 % Infiltration Rate: 0.20 ACH 0.53 ACH 0.33 ACH 161.4 % 2. Estimated Design Infiltration Rate: Winter: 115.4 CFM 301.6 CFM 186.2 CFM 161.4 % 0.33 ACH 0.85 ACH 0.53 ACH 161.4 % Cost Estimates 1. Estimated Costs of Air Leakage	Test File: Date of Test:	Avalon Tower-FP 5/16/2018	T 1.2 (5-16-2018)	Da	Test File: te of Test:	wer-FPT 1.1 (	ver-FPT 1.1 (9-5-2017)			
Test Results       Test #1       Test #2       Change       Percent         1. Airflow at 50 Pascals:       1746 CFM       4564 CFM       2817 CFM       161.4 %         4.94 ACH       12.92 ACH       7.98 ACH       161.4 %         2. Leakage Areas:       LBL ELA @ 4 Pa:       96.0 in2       251.0 in2       155.0 in2       161.4 %         Infiltration Estimates       1       50.0 in2       251.0 in2       155.0 in2       161.4 %         Infiltration Estimates       71.2 CFM       186.0 CFM       114.8 CFM       161.4 %         Infiltration Rate:       0.20 ACH       0.53 ACH       0.33 ACH       161.4 %         2. Estimated Design Infiltration Rate:       Winter:       115.4 CFM       301.6 CFM       186.2 CFM       161.4 %         0.33 ACH       0.85 ACH       0.53 ACH       161.4 %       0.33 ACH       161.4 %         0.207 ACH       0.70 ACH       0.43 ACH       161.4 %       0.27 ACH       0.70 ACH       0.43 ACH       161.4 %	Customer:	The Beach Club F 375A. Beach CLu 925 Beach Club T Gulf Shores, Alab	<sup>p</sup> arcel #9 b Trail Irail ama		Customer:	The Beac 375A. Bea 925 Beac Gulf Shore	h Club Parcel ach CLub Trai h Club Trail es, Alabama	#9 I		
1. Airflow at 50 Pascals:       1746 CFM       4564 CFM       2817 CFM       161.4 %         4.94 ACH       12.92 ACH       7.98 ACH       161.4 %         2. Leakage Areas:       LBL ELA @ 4 Pa:       96.0 in2       251.0 in2       155.0 in2       161.4 %         Infiltration Estimates       96.0 in2       251.0 in2       155.0 in2       161.4 %         Infiltration Estimates       71.2 CFM       186.0 CFM       114.8 CFM       161.4 %         Infiltration Rate:       0.20 ACH       0.53 ACH       0.33 ACH       161.4 %         2. Estimated Design       Infiltration Rate:       0.33 ACH       0.85 ACH       0.53 ACH       161.4 %         Summer:       94.1 CFM       246.0 CFM       186.2 CFM       161.4 %       0.33 ACH       0.43 ACH       161.4 %         Summer:       94.1 CFM       246.0 CFM       186.2 CFM       161.4 %       0.27 ACH       0.70 ACH       0.43 ACH       161.4 %       161.4 %         Summer:       94.1 CFM       246.0 CFM       151.9 CFM       161.4 %       161.4 %       161.4 %       161.4 %       161.4 %       161.4 %       161.4 %       161.4 %       161.4 %       161.4 %       161.4 %       161.4 %       161.4 %       161.4 %       161.4 %       161.4 %	Results		Test #1	Test #	2 C	hange	Percent			
2. Leakage Areas:       LBL ELA @ 4 Pa:       96.0 in2       251.0 in2       155.0 in2       161.4 %         Infiltration Estimates       1       1. Estimated Annual Average       71.2 CFM       186.0 CFM       114.8 CFM       161.4 %         Infiltration Rate:       0.20 ACH       0.53 ACH       0.33 ACH       161.4 %         2. Estimated Design Infiltration Rate:       Winter:       115.4 CFM       301.6 CFM       186.2 CFM       161.4 %         0.33 ACH       0.85 ACH       0.53 ACH       161.4 %       0.33 ACH       161.4 %         2. Estimated Design Infiltration Rate:       Winter:       115.4 CFM       301.6 CFM       186.2 CFM       161.4 %         0.33 ACH       0.85 ACH       0.53 ACH       161.4 %       0.33 ACH       161.4 %         Summer:       94.1 CFM       246.0 CFM       151.9 CFM       161.4 %         0.27 ACH       0.70 ACH       0.43 ACH       161.4 %         16.55 Estimates       161.4 %       161.4 %	Airflow at 50 Pa	ascals:	1746 CFM 4.94 ACH	4564 C 12.92 A	FM 28 CH 7	917 CFM	161.4 % 161.4 %			
Infiltration Estimates           1. Estimated Annual Average         71.2 CFM         186.0 CFM         114.8 CFM         161.4 %           Infiltration Rate:         0.20 ACH         0.53 ACH         0.33 ACH         161.4 %           2. Estimated Design Infiltration Rate:         Winter:         115.4 CFM         301.6 CFM         186.2 CFM         161.4 %           0.33 ACH         0.85 ACH         0.53 ACH         161.4 %         0.33 ACH         161.4 %           0.20 ACH         0.70 ACH         0.70 ACH         161.4 %         0.70 ACH         161.4 %	eakage Areas: LBL ELA @ 4	s: 4 Pa:	96.0 in2	251.0 in	2 15	5.0 in2	161.4 %			
1. Estimated Annual Average       71.2 CFM       186.0 CFM       114.8 CFM       161.4 %         Infiltration Rate:       0.20 ACH       0.53 ACH       0.33 ACH       161.4 %         2. Estimated Design Infiltration Rate:       Winter:       115.4 CFM       301.6 CFM       186.2 CFM       161.4 %         0.33 ACH       0.85 ACH       0.53 ACH       161.4 %       %         Summer:       94.1 CFM       246.0 CFM       151.9 CFM       161.4 %         0.27 ACH       0.70 ACH       0.43 ACH       161.4 %         Cost Estimates       161.4 %       %       %	tration Estima	ates								
2. Estimated Design Infiltration Rate:         Winter:       115.4 CFM       301.6 CFM       186.2 CFM       161.4 %         0.33 ACH       0.85 ACH       0.53 ACH       161.4 %         Summer:       94.1 CFM       246.0 CFM       151.9 CFM       161.4 %         0.27 ACH       0.70 ACH       0.43 ACH       161.4 %         Cost Estimates         1. Estimated Costs of Air Leakage	Estimated Annu nfiltration Rate:	ual Average e:	71.2 CFM 0.20 ACH	186.0 C 0.53 A	FM 11 CH 0	4.8 CFM .33 ACH	161.4 % 161.4 %			
Winter:         115.4 CFM         301.6 CFM         186.2 CFM         161.4 %           0.33 ACH         0.85 ACH         0.53 ACH         161.4 %           Summer:         94.1 CFM         246.0 CFM         151.9 CFM         161.4 %           0.27 ACH         0.70 ACH         0.43 ACH         161.4 %	Estimated Design nfiltration Rate:	sign e:								
Summer:         94.1 CFM         246.0 CFM         151.9 CFM         161.4 %           0.27 ACH         0.70 ACH         0.43 ACH         161.4 %		Winter:	115.4 CFM 0.33 ACH	301.6 C 0.85 A	FM 18 CH 0	6.2 CFM .53 ACH	161.4 % 161.4 %			
Cost Estimates 1. Estimated Costs of Air Leakage	:	Summer:	94.1 CFM 0.27 ACH	246.0 C 0.70 A	FM 15 CH 0	1.9 CFM .43 ACH	161.4 % 161.4 %			
1. Estimated Costs of Air Leakage	t Estimates									
for Heating: \$90 \$236 \$146 161.4 %	Estimated Costs or Heating:	sts of Air Leakage	<b>\$</b> 90	<b>\$</b> 236	<b>\$</b> 1	46	161.4 %			
2. Estimated Costs of Air Leakage for Cooling:       \$27       \$72       \$44       161.4 %	Estimated Cost or Cooling:	sts of Air Leakage	\$27	\$72	\$	644	161.4 %			







Test	Test #2							
Test File: Date of Test:	Avalon Tower-FF 5/16/2018	PT 2.2 (5-16-2018)	I	Test Date of T	File: Test:	Avalon To 9/5/2017	wer-FPT 2.1 (9-5-2017)	
Customer:	The Beach Club 375A. Beach CL 925 Beach Club Gulf Shores, Ala	Parcel #9 ub Trail Trail bama	Customer:			The Beach Club Parcel #9 375A. Beach CLub Trail 925 Beach Club Trail Gulf Shores, Alabama		
Test Results		Test #1	Test	#2	С	hange	Percent	
		0574 0514	6760				102.0.0/	
I. AIMOW at 50 P	ascals:	2071 CFM	6/62 19 1/		41		163.0 %	
		1.20 ACT	13.14		11.0		100.0 /0	
LBL ELA @	4 Pa:	141.4 in2	371.9	in2	230	).5 in2	163.0 %	
Infiltration Estim	ates							
1. Estimated Ann	ual Average	104.8 CFM	275.5	CFM	170	.8 CFM	163.0 %	
Infiltration Rate	e:	0.30 ACH	0.78	ACH	0.4	48 ACH	163.0 %	
2. Estimated Des Infiltration Rate	sign e:							
	Winter:	169.9 CFM	446.9	CFM	276	.9 CFM	163.0 %	
		0.48 ACH	1.27	ACH	0.	78 ACH	163.0 %	
	Summer:	138.6 CFM	364.5	CFM	225	.9 CFM	163.0 %	
		0.39 ACH	1.03	ACH	0.	64 ACH	163.0 %	
Cost Estimates								
1. Estimated Cos	sts of Air Leakage							
for Heating:	-	\$133	\$350		\$2	17	163.0 %	
2. Estimated Cos for Cooling:	sts of Air Leakage	\$40	\$106		\$	66	163.0 %	







_	Test	#1		Test #2					
	Test File: Date of Test:	Avalon Tower-FPT 5/16/2018	Г 3.2 (5-16-2018)		Test File Date of Test	: Av : 9/5	alon Tow 5/2017	er-FPT 3.1 (9-5-2017)	
	Customer:	The Beach Club F 375A. Beach CLui 925 Beach Club T Gulf Shores, Alaba	Parcel #9 b Trail irail ama		Customer	: Th 37 92 Gu	e Beach 5A. Beac 5 Beach Ilf Shores	Club Parcel #9 ch CLub Trail Club Trail s, Alabama	
Те	est Results		Test #1	Tes	t #2	Char	nge	Percent	
1.	Airflow at 50 F	ascals:	1041 CFM	1818	CFM	777	CFM	74.7 %	
•			4.64 ACH	8.10	ACH	3.46	ACH	74.7 %	
2.	Leakage Area LBL ELA @	s: 4 Pa:	57.2 in2	100.0	in2	42.7	in2	74.7 %	
In	filtration Estim	ates							
1.	Estimated Anr	nual Average	42.4 CFM	74.1	CFM	31.7	CFM	74.7 %	
	Infiltration Rat	e:	0.19 ACH	0.33	ACH	0.14	ACH	74.7 %	
2.	Estimated Des Infiltration Rat	sign e:							
		Winter:	68.8 CFM	120.1	CFM	51.4	CFM	74.7 %	
			0.31 ACH	0.54	ACH	0.23	ACH	74.7 %	
		Summer:	56.1 CFM	98.0	CFM	41.9	CFM	74.7 %	
			0.25 ACH	0.44	ACH	0.19	ACH	74.7 %	
Co	ost Estimates								
1.	Estimated Cos	sts of Air Leakage							
	for Heating:		\$54	\$94		\$40		74.7 %	
2.	Estimated Cos	sts of Air Leakage	\$16	\$29		\$12		747%	
				+		÷			





Audubon Consulting and Testing Inc. | 698 E. Heinberg St., Suite 104 | Pensacola, Florida 32502 Phone: 850.830.5348 | www.audubontesting.com



Test #1					Test #2				
Test File: Date of Test:	Avalon Tower-FP 5/16/2018	T 4.2 (5	-16-2018)	Ì	Test Date of	File: Test:	Avalon To 9/5/2017	ower-FPT 4.1 (9-5-2	2017)
Customer:	The Beach Club F 375A. Beach Club 925 Beach Club T Gulf Shores, Alab	Parcel #9 ub Trail Trail bama		Customer:			The Beach Club Parcel #9 375A. Beach CLub Trail 925 Beach Club Trail Gulf Shores, Alabama		
Test Results		Tes	t #1	Tes	t #2	С	nange	Percent	
1. Airflow at 50	Pascals:	1828 5.07	CFM ACH	3751 10.41	CFM ACH	192 5.3	23 CFM 33 ACH	105.2 % 105.2 %	
2. Leakage Area LBL ELA @	as: ) 4 Pa:	100.5	in2	206.3	in2	105	.8 in2	105.2 %	
Infiltration Estir	nates								
1. Estimated An Infiltration Ra	nual Average ite:	76.8 0.21	CFM ACH	157.5 0.44	CFM ACH	80 0.2	.8 CFM 22 ACH	105.2 % 105.2 %	
2. Estimated De Infiltration Ra	esign ite:								
	Winter:	120.8 0.34	CFM ACH	247.9 0.69	CFM ACH	127 0.3	.1 CFM 35 ACH	105.2 % 105.2 %	
	Summer:	98.5 0.27	CFM ACH	202.2 0.56	CFM ACH	103 0.2	.7 CFM 29 ACH	105.2 % 105.2 %	
Cost Estimates									
<ol> <li>Estimated Confor Heating:</li> </ol>	osts of Air Leakage	\$98		\$201		\$10	03	105.2 %	
2. Estimated Co for Cooling:	osts of Air Leakage	\$30		\$61		\$:	81	105.2 %	





Audubon Consulting and Testing Inc. | 698 E. Heinberg St., Suite 104 | Pensacola, Florida 32502 Phone: 850.830.5348 | <u>www.audubontesting.com</u>



### **Disclosures and Limitations:**

- 1. This report was prepared for the sole and exclusive use of the client stated on the cover page of this document. Only Audubon Consulting and Testing, Inc. may interpret the information in the report.
- 2. Audubon Consulting and Testing, Inc. assume no liability and/or responsibility to any thirdparty related to this report.
- 3. The research and report services provided are consistent with current standards of care and degree of skill ordinarily exercised by other consultants currently practicing under similar circumstances.
- 4. Audubon Consulting and Testing, Inc. make no warranty as to the conclusions, suggestions, and/or results of the service.
- 5. This report is not intended to be and should not be construed as the practice of architectural design or engineering as defined by Title 37 of the Louisiana Revised Statutes.
- 6. Audubon Consulting and Testing, Inc. has no present interest or contemplated future interest in these properties and neither the assignment to provide services nor the compensation to Audubon Consulting and Testing, Inc. is contingent upon the conclusions, suggestions, and/or results of the service.
- 7. The fee for this service is not in any way contingent upon the contents of this report.

### <End of Document>