MIAMI-DADE COUNTY
PRODUCT CONTROL SECTION
11805 SW 26 Street, Room 208
Miami, Florida 33175-2474
T (786) 315-2590 F (786) 315-2599
www.miamidade.gov/economy

DEPARTMENT OF REGULATORY AND ECONOMIC RESOURCES (RER)
BOARD AND CODE ADMINISTRATION DIVISION

NOTICE OF ACCEPTANCE (NOA)

Greenheck Fan Corporation
P.O. Box 410
Schofield, WI 54476

SCOPE:

This NOA is being issued under the applicable rules and regulations governing the use of construction materials. The documentation submitted has been reviewed and accepted by Miami-Dade County RER - Product Control Section to be used in Miami Dade County and other areas where allowed by the Authority Having Jurisdiction (AHJ).

This NOA shall not be valid after the expiration date stated below. The Miami-Dade County Product Control Section (In Miami Dade County) and/or the AHJ (in areas other than Miami Dade County) reserve the right to have this product or material tested for quality assurance purposes. If this product or material fails to perform in the accepted manner, the manufacturer will incur the expense of such testing and the AHJ may immediately revoke, modify, or suspend the use of such product or material within their jurisdiction. RER reserves the right to revoke this acceptance, if it is determined by Miami-Dade County Product Control Section that this product or material fails to meet the requirements of the applicable building code.

This product is approved as described herein, and has been designed to comply with the Florida Building Code, including the High Velocity Hurricane Zone.

DESCRIPTION: Model ESD-635DE Aluminum Louver

APPROVAL DOCUMENT: Drawing No. **ESD-635DE**, titled "ESD-635DE NOA Drawings", sheets 1 through 9 of 9, dated 10/27/2015, prepared by Greenheck Fan Corporation, signed and sealed by Chander P. Nangia, P.E., bearing the Miami-Dade County Product Control approval stamp with the Notice of Acceptance number and approval date by the Miami-Dade County Product Control Section.

MISSILE IMPACT RATING: Large and Small Missile Impact Resistant

LABELING: Each unit shall bear a permanent label with the manufacturer's name or logo, city, state, model/series, and following statement: "Miami-Dade County Product Control Approved", unless otherwise noted herein.

RENEWAL of this NOA shall be considered after a renewal application has been filed and there has been no change in the applicable building code negatively affecting the performance of this product.

TERMINATION of this NOA will occur after the expiration date or if there has been a revision or change in the materials, use, and/or manufacture of the product or process. Misuse of this NOA as an endorsement of any product, for sales, advertising or any other purposes shall automatically terminate this NOA. Failure to comply with any section of this NOA shall be cause for termination and removal of NOA.

ADVERTISEMENT: The NOA number preceded by the words Miami-Dade County, Florida, and followed by the expiration date may be displayed in advertising literature. If any portion of the NOA is displayed, then it shall be done in its entirety.

INSPECTION: A copy of this entire NOA shall be provided to the user by the manufacturer or its distributors and shall be available for inspection at the job site at the request of the Building Official.

This NOA consists of this page 1 and evidence page E-1, as well as approval document mentioned above.

The submitted documentation was reviewed by **Carlos M. Utrera, P.E.**

MIAMI-DADE COUNTY APPROVED

01/28/2016

NOTICE OF ACCEPTANCE: EVIDENCE SUBMITTED

A. DRAWINGS

1. Drawing No. **ESD-635DE**, titled "ESD-635DE NOA Drawings", sheets 1 through 9 of 9, dated 10/27/2015, prepared by Greenheck Fan Corporation, signed and sealed by Chander P. Nangia, P.E.

B. TESTS

1. Test report on 1) Uniform Static Air Pressure Test per FBC, TAS 202-94
   2) Large Missile Impact Test per FBC, TAS 201-94,
   3) Cyclic Wind Pressure Test per FBC, TAS 203-94,
   along with marked-up drawings and installation diagram of Model ESD-635DE (sleeved) aluminum louvers, prepared by Architectural Testing, Inc., Test Report No. **F0132.01-602-18**, dated 10/26/2015, signed and sealed by Justin P. McDonald, P.E.
2. Test report on 1) Uniform Static Air Pressure Test per FBC, TAS 202-94
   2) Large Missile Impact Test per FBC, TAS 201-94,
   3) Cyclic Wind Pressure Test per FBC, TAS 203-94,
   along with marked-up drawings and installation diagram of Model ESD-635DE (non-sleeved) aluminum louvers, prepared by Architectural Testing, Inc., Test Report No. **F0133.01-602-18**, dated 08/27/2015, signed and sealed by Justin P. McDonald, P.E.

C. CALCULATIONS

1. Structural and anchors calculations prepared by Chander P. Nangia, P.E., dated 10/26/2015, signed and sealed by Chander P. Nangia, P.E.

D. QUALITY ASSURANCE

1. Miami-Dade Department of Regulatory and Economic Resources (RER)

E. MATERIAL CERTIFICATIONS

1. None.

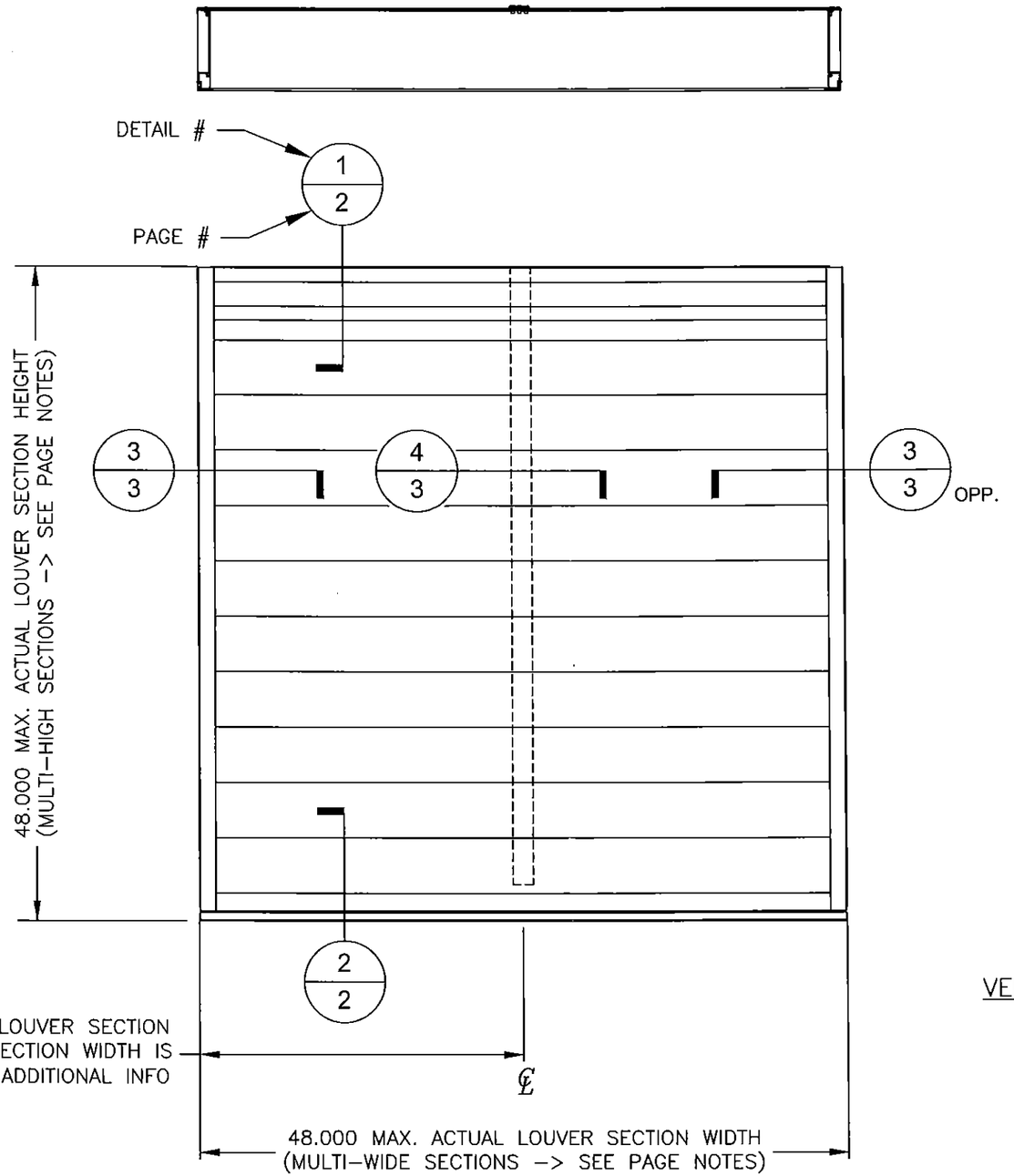
F. STATEMENTS

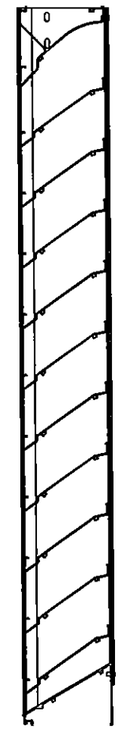
1. Statement letter of code compliance to the 5th edition (2014) FBC issued by Chander P. Nangia, P.E., dated 10/27/2015, signed and sealed by Chander P. Nangia, P.E.
2. Statement letter of no financial interest issued by Chander P. Nangia, P.E., dated 10/27/2015, signed and sealed by Chander P. Nangia, P.E.

01/28/2016

Carlos M. Utrera, P.E.
Product Control Examiner
NOA No. 15-1109.04
Expiration Date: February 4, 2021
Approval Date: February 4, 2016

HORIZONTAL SECTION CUT





VERTICAL SECTION CUT

CHANDER P. NANGIA, PE
7423 HOLLOW RIDGE DR.
HOUSTON, TX 77095
FLORIDA PE # 21938

CHANDER P. NANGIA
LICENSE
No. 21938
STATE OF FLORIDA
PROFESSIONAL ENGINEER

OCT 27 2015

Approved as complying with the Florida Building Code
Date 02/04/2016
NOA# 15-1109.04
Miami Dade Product Control
By _____

PAGE NOTES (TYP. ALL PAGES)

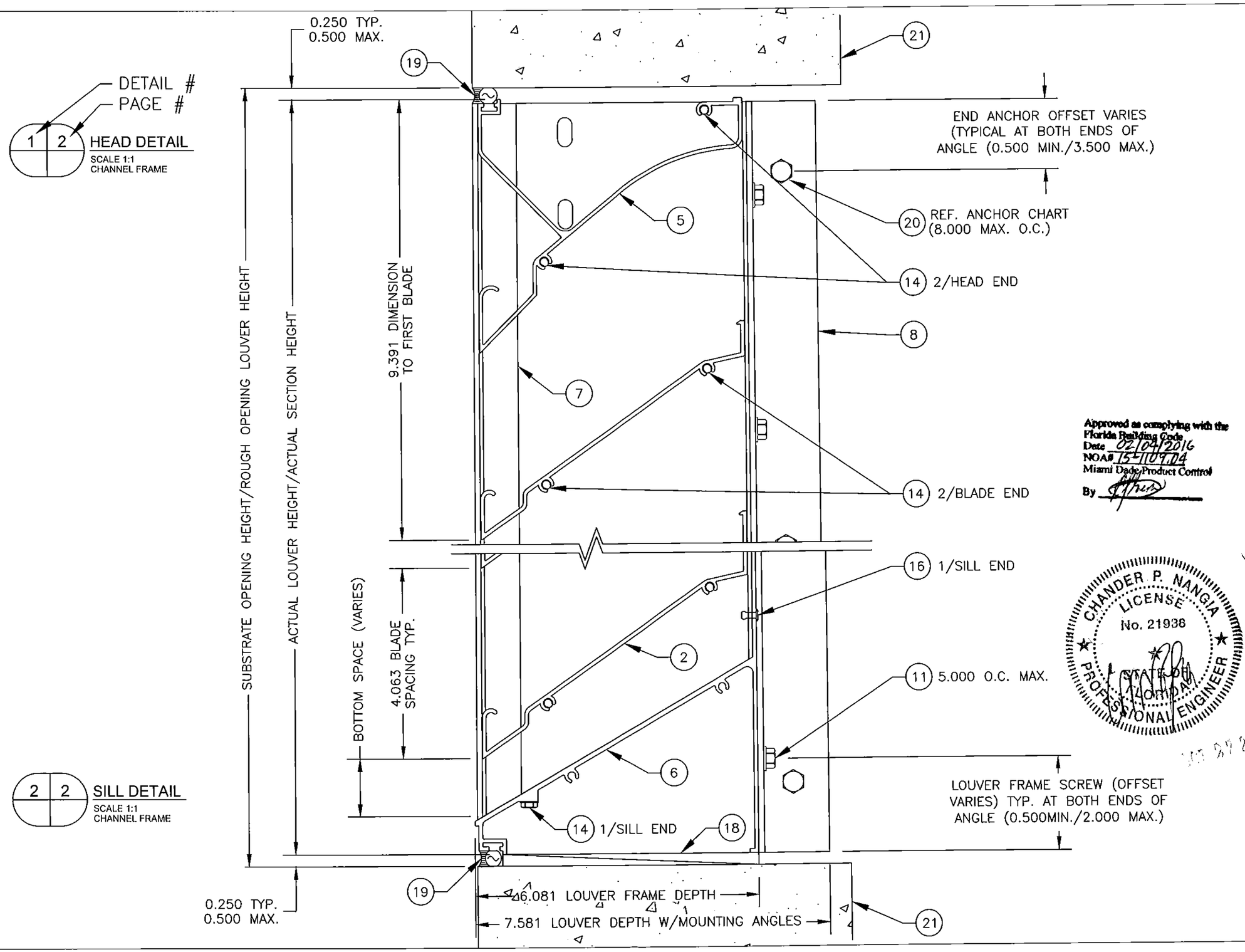
PAGE NOTES:

- MULTI-WIDE AND/OR MULTI-HIGH ASSEMBLIES ARE PERMITTED AS-LONG-AS EACH LOUVER SECTION'S WIDTH/HEIGHT ARE WITHIN THE ALLOWABLE MAXIMUMS AND SUITABLE SUBSTRATES SURROUNDS EACH LOUVER SECTION ASSEMBLY PERIMETER AND EACH LOUVER SECTION IS INSTALLED PER DETAILS HEREIN (REFERENCE PAGES 2 & 3 OF 9).
- STRAP NOT REQUIRED FOR NOA OR AMCA 540 IMPACT LEVEL D (50 ft/s), BUT IS REQUIRED TO PASS AMCA 540 IMPACT LEVEL E (80 ft/s).

GREENHECK
P.O.BOX 410 SCHOFIELD, WISCONSIN 54476-0410

TITLE: ESD-635DE NOA DRAWINGS
CHANNEL FRAME ELEVATION

DRAWN BY	DATE
NAH	10/27/15
SCALE	
1:5	
SHEET NO.	
1 OF 9	
CAD DRAWING NO.	
ESD-635DE	



Approved as complying with the Florida Building Code
Date 02/04/2016
NOA# 15-1109.04
Miami Dade Product Control
By

CHANDER P. NANGIA
LICENSE
No. 21936
STATE OF FLORIDA
PROFESSIONAL ENGINEER

OCT 27 2015

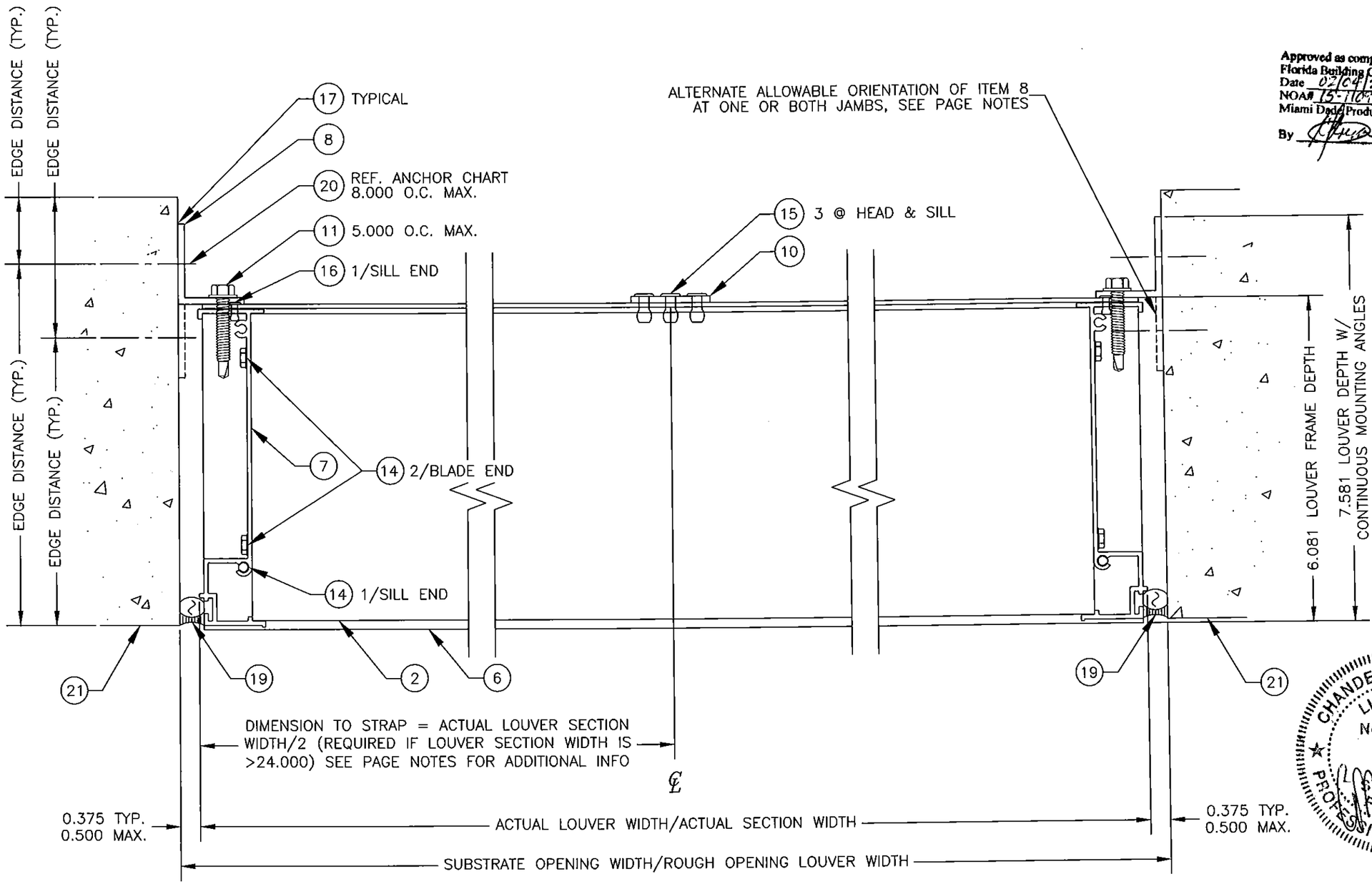
GREENHECK
P.O.BOX 410 SCHOFIELD, WISCONSIN 54476-0410

DRAWN BY NAH | DATE 10/27/15
SCALE 1:1 | SHEET NO. 2 OF 9
CAD DRAWING NO. ESD-635DE

TITLE: ESD-635DE NOA DRAWINGS
CHANNEL FRAME DETAILS

PAGE NOTES:

- STANDARD LOUVER HEIGHT DOWNSIZING IS 0.250 PER END (0.500 OVERALL TOTAL) WHEN ORDERED BASED ON ROUGH OPENING SIZING.
- STRAP (ITEM 10) NOT SHOWN FOR CLARITY – SEE PAGE 3 FOR DETAIL AND NOTE.



3 | 3 JAMB DETAIL
SCALE: 1:1
CHANNEL FRAME

4 | 3 SUPPORT STRAP DETAIL
SCALE: 1:1
CHANNEL FRAME (SEE PAGE NOTES - STRAP)

3opp. | 3 JAMB DETAIL
SCALE: 1:1
CHANNEL FRAME

Approved as complying with the Florida Building Code
Date 02/04/2016
NOA# 15-1109.04
Miami Dade Product Control
By

CHANDER P. NANGIA LICENSE No. 21938 STATE OF FLORIDA PROFESSIONAL ENGINEER
JAN 27 2016

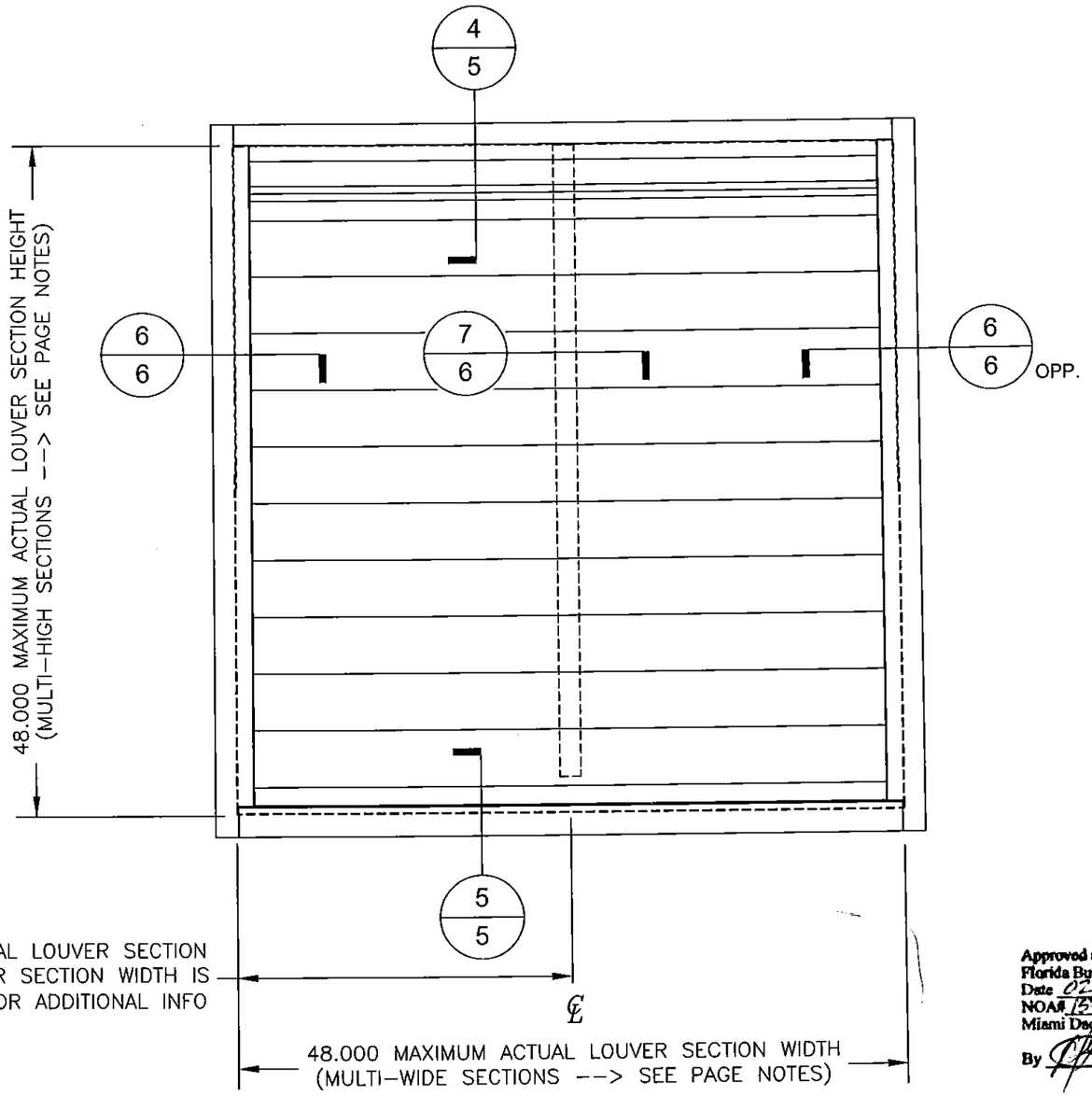
GREENHECK
P.O.BOX 410 SCHOFIELD, WISCONSIN 54476-0410

DRAWN BY: NAH | DATE: 10/27/15
SCALE: 1:1
SHEET NO.: 3 OF 9
CAD DRAWING NO.: ESD-635DE

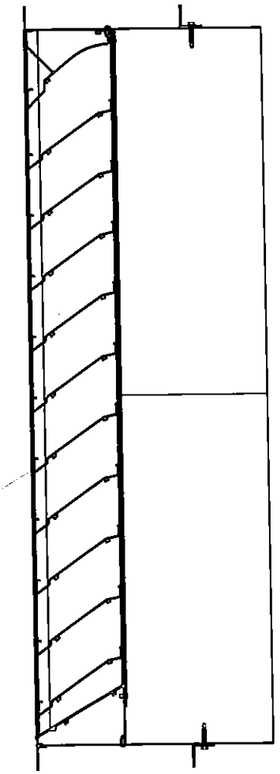
TITLE: ESD-635DE NOA DRAWINGS CHANNEL FRAME DETAILS

PAGE NOTES:
- TO ALLOW FOR SUBSTRATE ANCHOR HEAD CLEARANCE, STANDARD LOUVER WIDTH DOWNSIZING IS 0.375 PER END (0.750 OVERALL TOTAL) WHEN ORDERED BASED ON ROUGH OPENING SIZING. THERE IS NO NEED FOR ADDITIONAL DOWNSIZING AT THE JAMBS WHEN USING THE ALTERNATE ANCHOR ORIENTATION.
- STRAP NOT REQUIRED FOR NOA OR AMCA 540 IMPACT LEVEL D (50 ft/s), BUT IS REQUIRED TO PASS AMCA 540 IMPACT LEVEL E (80 ft/s).

HORIZONTAL SECTION CUT



DIMENSION TO STRAP = ACTUAL LOUVER SECTION WIDTH/2 (REQUIRED IF LOUVER SECTION WIDTH IS >24.000) SEE PAGE NOTES FOR ADDITIONAL INFO



VERTICAL SECTION CUT

Approved as complying with the Florida Building Code
Date 02/04/2016
NOA# 15-1102.14
Miami Dade Product Control
By

CHANDER P. NANGIA
LICENSE
No. 21938
STATE OF FLORIDA
PROFESSIONAL ENGINEER

OCT 29 2015

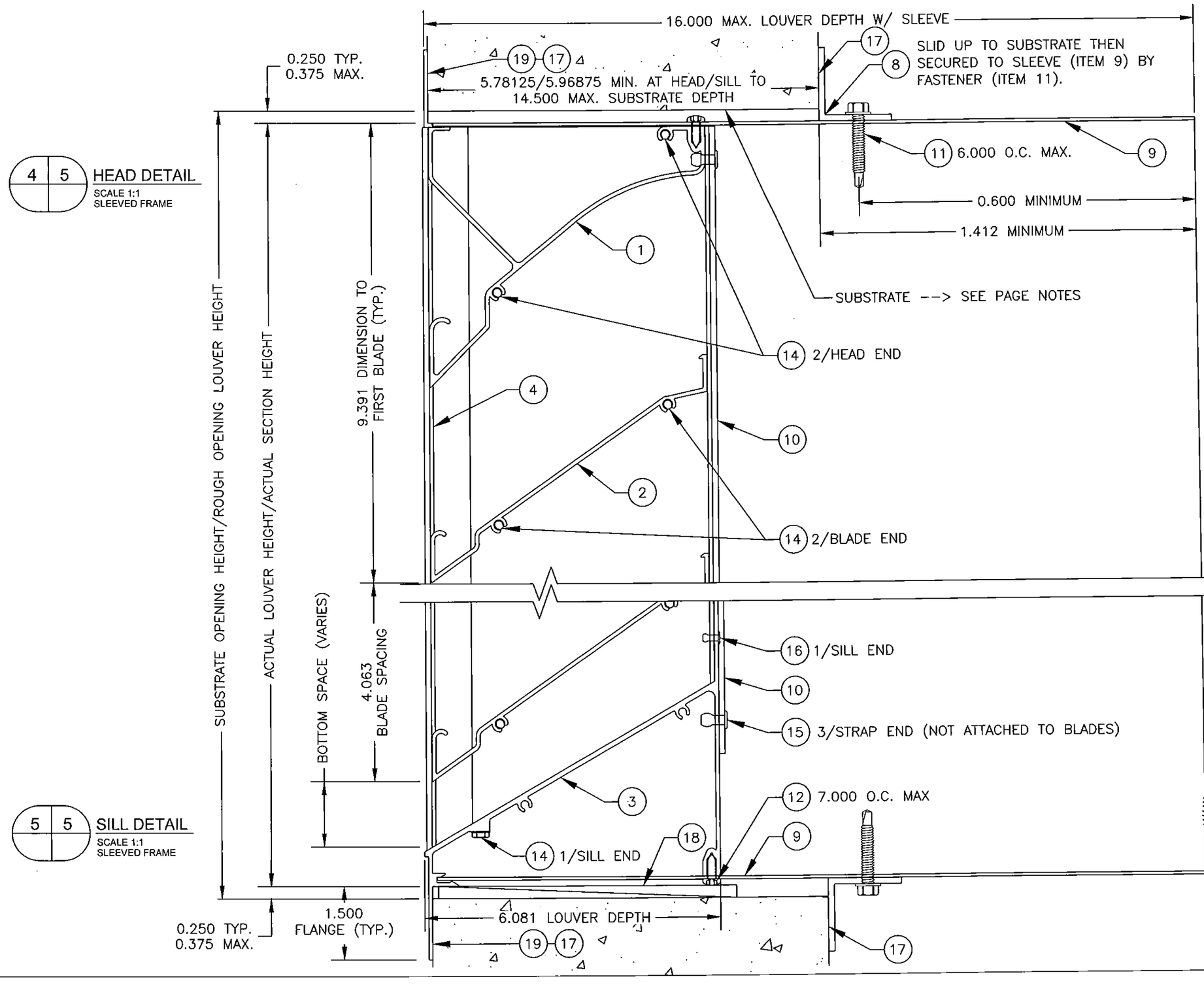
PAGE NOTES:

- MULTI-WIDE AND/OR MULTI-HIGH ASSEMBLIES ARE PERMITTED AS-LONG-AS EACH LOUVER SECTION'S WIDTH/HEIGHT ARE WITHIN THE ALLOWABLE MAXIMUMS AND SUITABLE SUBSTRATES SURROUNDS EACH LOUVER SECTION ASSEMBLY PERIMETER AND EACH LOUVER SECTION IS INSTALLED PER DETAILS HEREIN (REF. PAGES 5 & 6 OF 9).
- STRAP NOT REQUIRED FOR NOA OR AMCA 540 IMPACT LEVEL D (50 ft/s), BUT IS REQUIRED TO PASS AMCA 540 IMPACT LEVEL E (80 ft/s).

GREENHECK
P.O.BOX 410 SCHOFIELD, WISCONSIN 54476-0410

TITLE: ESD-635DE NOA DRAWINGS
SLEEVED FRAME ELEVATION

DRAWN BY	DATE
NAH	10/27/15
SCALE	
1:5	
SHEET NO.	CAD DRAWING NO.
4 OF 9	ESD-635DE



4 | 5 HEAD DETAIL
SCALE 1:1
SLEEVED FRAME

5 | 5 SILL DETAIL
SCALE 1:1
SLEEVED FRAME

Approved as complying with the Florida Building Code
Date 02/04/2016
NOA# 15-1109.04
Miami Dade Product Control
By

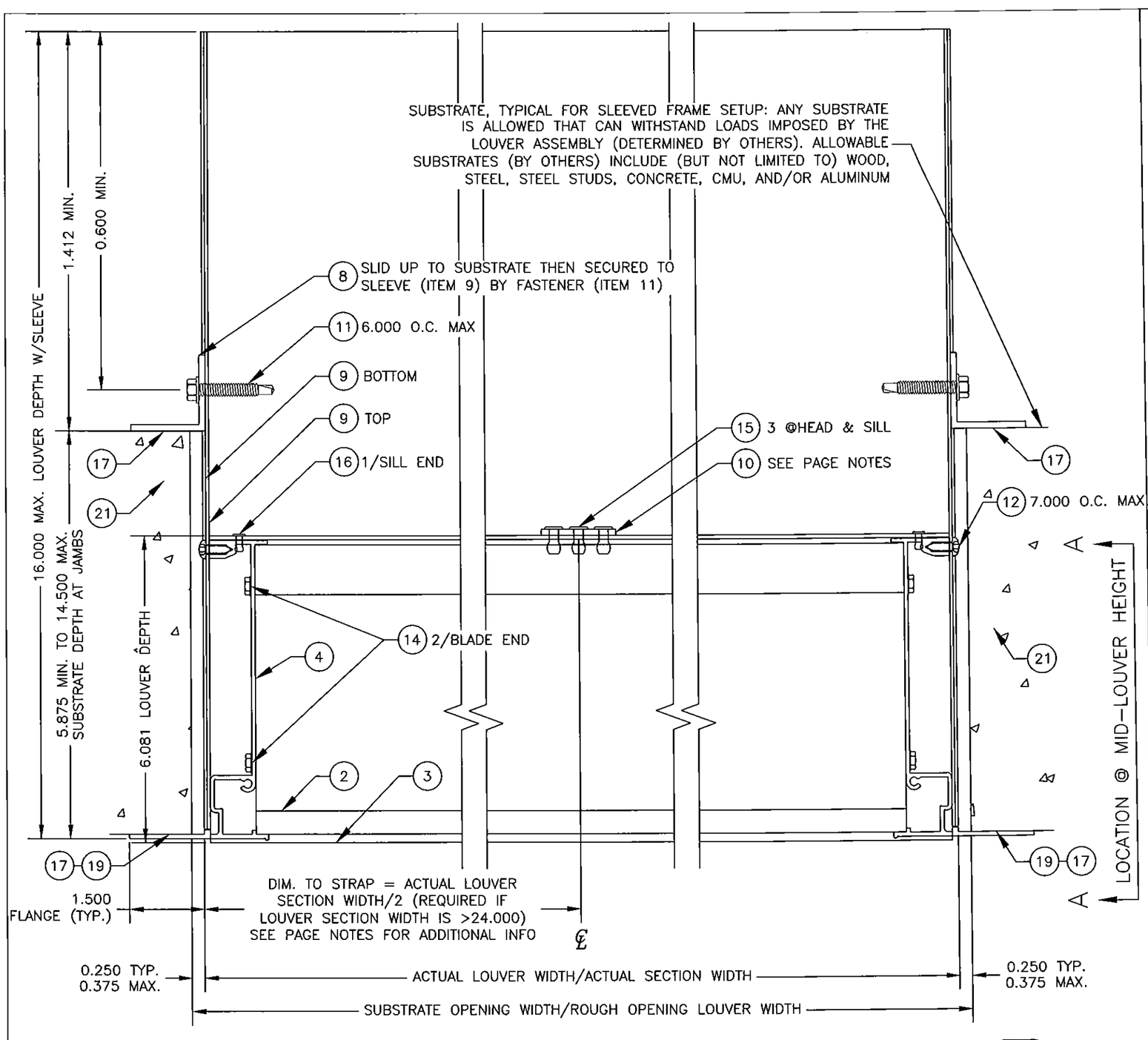
CHANDER P. NANGIA
LICENSE
No. 21038
STATE OF FLORIDA
PROFESSIONAL ENGINEER
OCT 27 2015

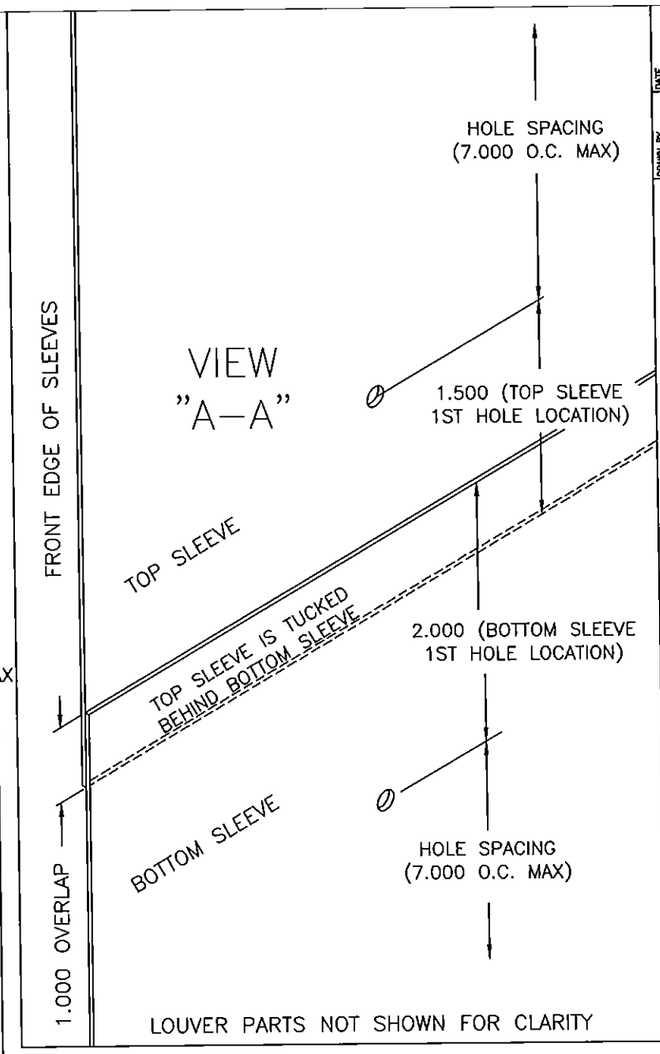
PAGE NOTES:
- SUBSTRATE, TYP. FOR SLEEVED FRAME SETUP: ANY SUBSTRATE IS ALLOWED THAT CAN WITHSTAND LOADS IMPOSED BY THE LOUVER ASSEMBLY (DETERMINED BY OTHERS). ALLOWABLE SUBSTRATES (BY OTHERS) INCLUDE (BUT NOT LIMITED TO) WOOD, STEEL, STEEL STUDS, CONCRETE, CMU, AND/OR ALUMINUM.
- STANDARD LOUVER HEIGHT DOWNSIZING IS 0.375 TOTAL PER END (0.750 OVERALL) WHEN ORDERED BASED ON ROUGH OPENING HEIGHT
- STRAP NOT REQUIRED FOR NOA OR AMCA 540 IMPACT LEVEL D (50 ft/s), BUT IS REQUIRED TO PASS AMCA 540 IMPACT LEVEL E (80 ft/s).

DRAWN BY NAH | DATE 10/27/15
SCALE 1:1 | SHEET NO. 5 OF 9
CAD DRAWING NO. ESD-635DE

GREENHECK
P.O.BOX 410 SCHOFIELD, WISCONSIN 54476-0410

TITLE:
ESD-635DE NOA DRAWINGS
SLEEVED FRAME DETAILS





6 | 6 JAMB DETAIL
SCALE 1:1
SLEEVED FRAME

7 | 6 SUPPORT STRAP DETAIL
SCALE 1:1
SLEEVED FRAME

6opp | 6 JAMB DETAIL
SCALE 1:1
SLEEVED FRAME

Approved as complying with the Florida Building Code
Date 02/04/2016
NOA# E-11064.04
Miami Dade Product Control
By

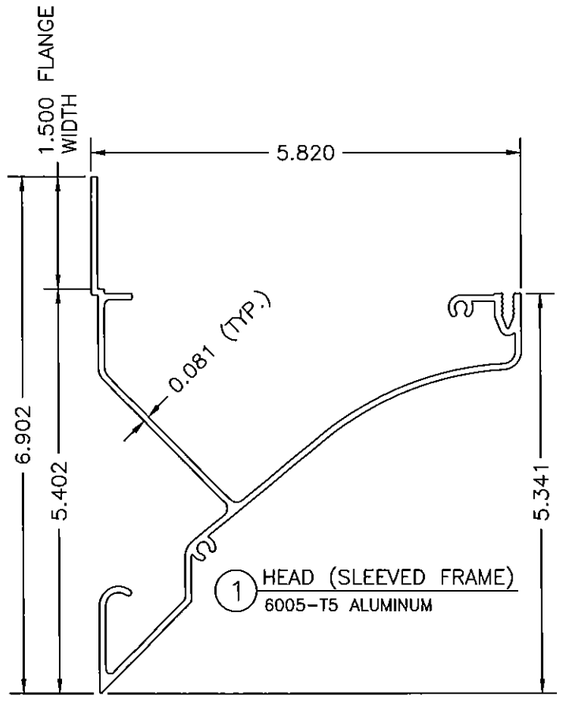
CHANDER P. NANGIA
LICENSE
No. 21938
STATE OF FLORIDA
PROFESSIONAL ENGINEER
OCT 27 2015

PAGE NOTES:
- STANDARD LOUVER WIDTH DOWNSIZING IS 0.250, BUT UP TO 0.375 TOTAL PER END (0.750" OVERALL TOTAL) IS ALLOWABLE. CONSULT YOUR LOCAL REP OR THE MANUFACTURER IF ASSISTANCE IS NEEDED FOR PROPER DOWNSIZING FOR YOUR APPLICATION.
- STRAP NOT REQUIRED FOR NOA OR AMCA 540 IMPACT LEVEL D (50 ft/s), BUT IS REQUIRED TO PASS AMCA 540 IMPACT LEVEL E (80 ft/s).

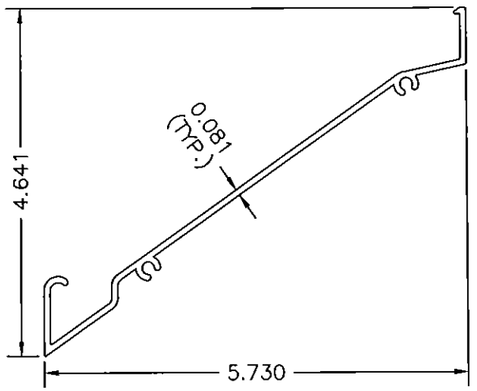
DRAWN BY NAH | DATE 10/27/15
SCALE 1:1.1 | SHEET NO. 6 OF 9
CAD DRAWING NO. ESD-635DE

GREENHECK
P.O.BOX 410 SCHOFIELD, WISCONSIN 54476-0410

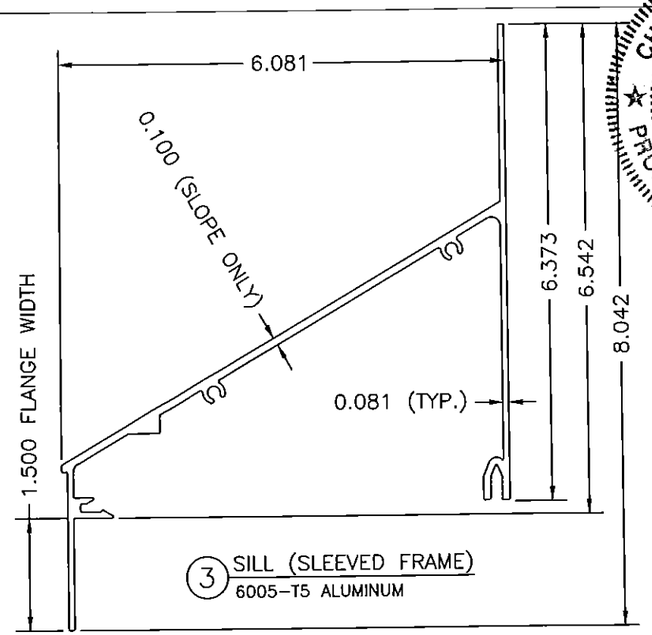
TITLE: ESD-635DE NOA DRAWINGS
SLEEVED FRAME DETAILS



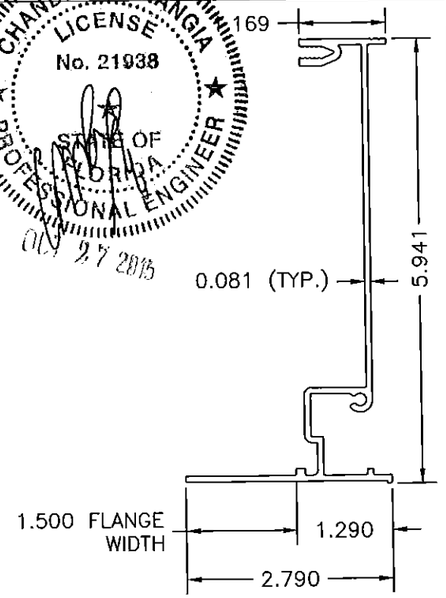
1 HEAD (SLEEVED FRAME)
6005-T5 ALUMINUM



2 BLADE (ALL FRAME TYPES)
6063-T5 ALUMINUM



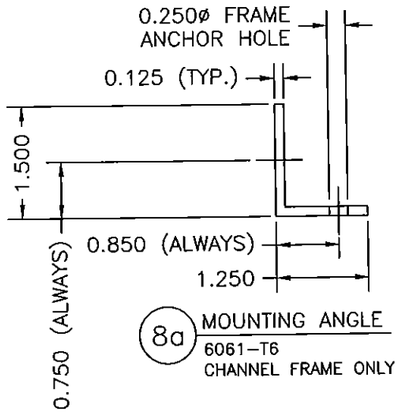
3 SILL (SLEEVED FRAME)
6005-T5 ALUMINUM



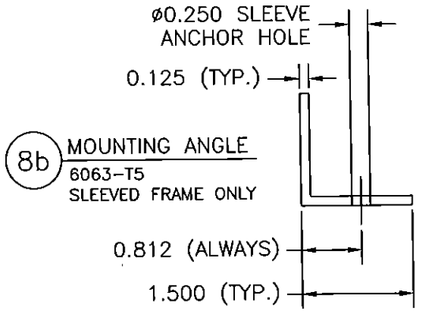
4 JAMB (SLEEVED FRAME)
6005-T5 ALUMINUM

CHANDER P. NANGIA
LICENSE
No. 21938
STATE OF FLORIDA
PROFESSIONAL ENGINEER
OCT 27 2015

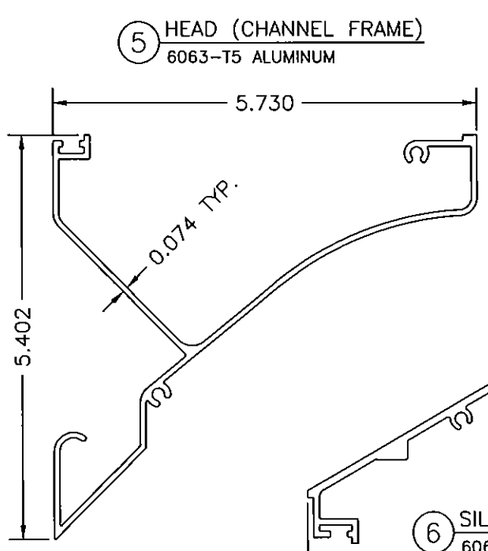
Approved as complying with the Florida Building Code
Date 02/04/2016
NOA# 15-1007.04
Miami Dade Product Control
By



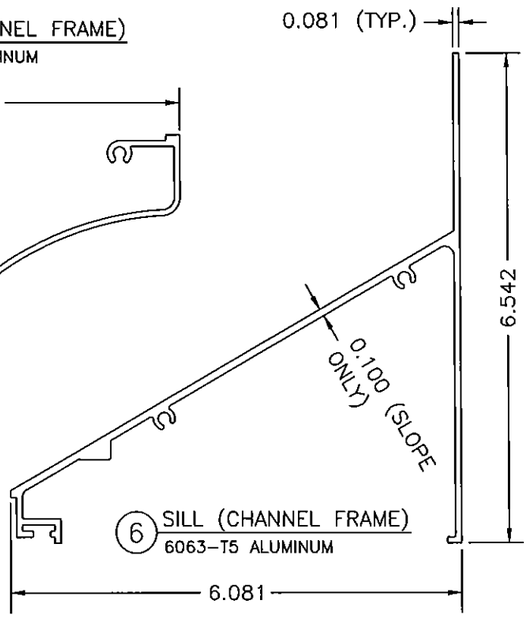
8a MOUNTING ANGLE
6061-T6
CHANNEL FRAME ONLY



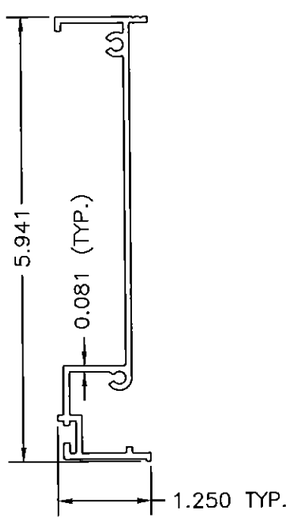
8b MOUNTING ANGLE
6063-T5
SLEEVED FRAME ONLY



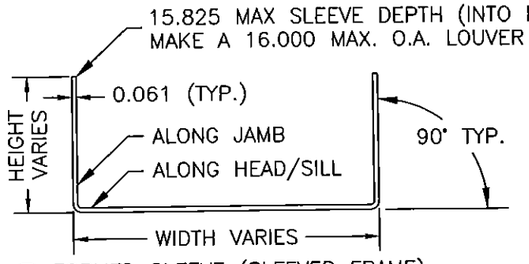
5 HEAD (CHANNEL FRAME)
6063-T5 ALUMINUM



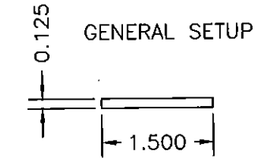
6 SILL (CHANNEL FRAME)
6063-T5 ALUMINUM



7 JAMB (CHANNEL FRAME)
6063-T5 ALUMINUM



9 FORMED SLEEVE (SLEEVED FRAME)
5052-H32 ALUMINUM



10 STRAP
ALUMINUM
* *SEE PAGE NOTES* *

PAGE NOTES:

- STRAP NOT REQUIRED FOR NOA OR AMCA 540 IMPACT LEVEL D (50 ft/s), BUT IS REQUIRED TO PASS AMCA 540 IMPACT LEVEL E (80 ft/s).
- ALL SHEET METAL PARTS ARE SHOWN AT ACTUAL THICKNESSES

GREENHECK
P.O.BOX 410 SCHOFIELD, WISCONSIN 54476-0410

TITLE: ESD-635DE NOA DRAWINGS
PART DETAILS

DRAWN BY	DATE
NAH	10/27/15
SCALE	
1:1	
SHEET NO.	CAD DRAWING NO.
7 OF 9	ESD-635DE

ITEM	DESCRIPTION	MATERIAL	INTERNAL ID#	NOTES
1	HEAD	6005-T5 ALUMINUM	126098	SLEEVED FRAME ONLY
2	BLADE	6063-T5 ALUMINUM	125263	4.063" O.C. SPACING (TYPICAL ALL UNITS)
3	SILL	6005-T5 ALUMINUM	126099	SLEEVED FRAME ONLY
4	JAMB	6005-T5 ALUMINUM	126100	SLEEVED FRAME ONLY
5	HEAD	6063-T5 ALUMINUM	125043	CHANNEL FRAME (NON-SLEEVED) ONLY
6	SILL	6063-T5 ALUMINUM	125867	CHANNEL FRAME (NON-SLEEVED) ONLY
7	JAMB	6063-T5 ALUMINUM	125045	CHANNEL FRAME (NON-SLEEVED) ONLY
8a	MOUNTING ANGLE (CHANNEL FRAME)	6061-T6	125811	TYPICAL AT JAMBS ONLY
8b	MOUNTING ANGLE (SLEEVED FRAME)	6063-T5	125151	TYPICAL AROUND SLEEVE PERIMETER
9	SLEEVE	5052-H32 ALUMINUM	100172	0.061 ACTUAL THICKNESS
10	STRAP	ALUMINUM	130311	ATTACHED @ HEAD/SILL ONLY, NOT REQ'D FOR NOA
---	---	---	---	---
11	1/4-20x1.500L SCREW, HILTI KWIK-FLEX, SUPPLIED BY LOUVER MANUFACTURER	COATED STEEL	416581	8.000 O.C. MAX. (CHANNEL FRAME) AND 6.000 O.C. MAX. (SLEEVED FRAME), SHORTER OVERALL LENGTH (WITH 0.313 MIN THREADED LENGTH) ALLOWABLE
12	#10-16x0.500L SCREW	300 SERIES SS	417207	7.000 MAX. ON CENTERS - TYPICAL SLEEVED UNITS ONLY
13	NOT USED	---	---	---
14	#10-16x2.250L SCREW	300 SERIES SS	416351	
15	3/16"ø RIVET	300 SERIES SS	416588	NOT REQUIRED FOR NOA
16	1/8"ø RIVET	ALUMINUM	415194	
---	---	---	---	---
17	SHIM/SEPARATE DISSIMILAR MATL'S AS REQ'D	VARIES	N/A	BY OTHERS AS NEEDED
18	SHIM, NON-COMPRESSIBLE	VARIES	N/A	BY OTHERS, OPTIONAL
19	SEALANT AND BACKER ROD	VARIES	N/A	BY OTHERS, OPTIONAL
20	SUBSTRATE FASTENER - SEE ANCHOR TABLE	SEE ANCHOR TABLE	N/A	BY OTHERS, MINIMUM OF ONE TYPE REQUIRED, SEE ANCHOR TABLE FOR ADDITIONAL INFORMATION
21	SUBSTRATE - GROUT FILLED CMU	GROUT FILLED CMU	N/A	BY OTHERS, MINIMUM OF ONE SUBSTRATE TYPE REQUIRED. SEE ANCHOR TABLE FOR NEEDED EDGE DISTANCE, SPACING, EMBEDMENT, ETC. IT IS THE RESPONSIBILITY OF THE PERMIT HOLDER TO VERIFY AND TO FACILITATE SEPARATION OF DISSIMILAR MATERIALS.
	SUBSTRATE - CONCRETE	CONCRETE	N/A	
	SUBSTRATE - STEEL STUD	STEEL	N/A	
	SUBSTRATE - STRUCTURAL STEEL	STEEL	N/A	
	SUBSTRATE - WOOD	WOOD	N/A	
	SUBSTRATE - ALUMINUM	ALUMINUM	N/A	

6. INSTALLER TO PROVIDE SEPARATION OF DIS-SIMILAR MATERIALS AS REQUIRED (SEE CURRENT FLORIDA BUILDING CODE). SEE OLDER 2010 FLORIDA BUILDING CODE SECTION 2003.8.4 FOR ADDITIONAL INFORMATION ON SEPARATION OF DIS-SIMILAR MATERIALS.

7. STEEL, STAINLESS STEEL, AND ALUMINUM PARTS MAY BE MADE OUT OF ALTERNATE ALLOY THAT HAS EQUAL OR GREATER YIELD STRENGTH. PART DIMENSIONS ARE MINIMUMS UNLESS DEFINED OTHERWISE.

9. THE INTERNAL ID NUMBERS SHOWN ON THIS PAGE ARE FOR FACTORY PURPOSES ONLY AND MAY BE UPDATED AT ANY TIME. ANY UPDATES WILL NOT ALTER THE ITEM AS DESCRIBED HEREIN.

10. THE LOUVER IS NOT DESIGNED TO PREVENT WIND-DRIVEN RAIN FROM PENETRATING INTO THE SPACE BEHIND THE LOUVER. THE LOUVER SHALL BE INSTALLED IN A LOCATION WHERE THE SPACE BEHIND THE LOUVER IS DESIGNED TO DRAIN WATER PENETRATING INTO THE ROOM OR THE ROOM WILL HOUSE WATER RESISTANT/PROOF EQUIPMENT, COMPONENTS, OR SUPPLIES.

10. ALL DIMENSION UNITS ARE IMPERIAL.

CHANDER P. NANGIA LICENSE No. 21038 STATE OF FLORIDA PROFESSIONAL ENGINEER

OCT 27 2016

Approved as complying with the Florida Building Code
Date 02/04/2016
NOA# 15-1109.09
Miami Dade Product Control
By

GENERAL NOTES:
1. IT IS THE RESPONSIBILITY OF THE PERMIT HOLDER TO VERIFY THE STRUCTURAL INTEGRITY OF THE EXISTING STRUCTURE TO SUPPORT THE LOADS IMPOSED BY THE LOUVER ASSEMBLY. THE LOUVER MANUFACTURER DOES NOT DETERMINE THE STRUCTURAL INTEGRITY OF THE SUBSTRATE STRUCTURE.

2. THE LOUVER HAS BEEN DESIGNED AND TESTED IN ACCORDANCE WITH MIAMI-DADE COUNTY PROTOCOLS (AND QUALIFIED IN ACCORDANCE WITH THE CURRENT FLORIDA BUILDING CODE AND TEST PROTOCOLS/STANDARDS THEREIN):
   TAS-201 (LARGE MISSILE IMPACT TEST)
   TAS-202 (UNIFORM STATIC WIND PRESSURE TEST)
   TAS-203 (UNIFORM CYCLIC WIND PRESSURE TEST)

3. THIS LOUVER HAS BEEN DESIGNED, TESTED, AND APPROVED TO WITHSTAND DESIGN PRESSURES OF UP TO AND INCLUDING +/-150PSF.

4. THE MAXIMUM SINGLE SECTION SIZE IS 48 INCHES WIDE BY 48 INCHES HIGH. MULTIPLE SECTIONS MAY BE MOUNTED TOGETHER TO CREATE A MULTI-WIDE AND/OR MULTI-HIGH ASSEMBLY PROVIDED THERE IS ADEQUATE SUBSTRATE ON ALL FOUR SIDES OF EACH SINGLE SECTION AND SECURED TO THE SUBSTRATE AS NOTED HEREIN.

5. GENERAL LOUVER CONSTRUCTION: HEAD, SILL, JAMBS, AND BLADES FOR ALL CASES ARE EXTRUDED ALUMINUM (SEE PAGE 7 FOR ALLOY TYPES). THE BLADE SPACING IS 4.063 INCHES. BLADES AND HEADS ARE SECURED TO THE JAMBS WITH TWO SCREWS PER END. THE SILLS ARE SECURED TO THE JAMBS WITH ONE SCREW AND ONE RIVET PER SILL END. STRAP NOT REQUIRED FOR NOA OR AMCA 540 IMPACT LEVEL D (50 ft/s), BUT IS REQUIRED TO PASS AMCA 540 IMPACT LEVEL E (80 ft/s).

DRAWN BY NAH | DATE 10/27/15
SCALE 1:1 | SHEET NO. 8 OF 9
CAD DRAWING NO. ESD-635DE

GREENHECK
P.O.BOX 410 SCHOFIELD, WISCONSIN 54476-0410

TITLE: ESD-635DE NOA DRAWINGS
ITEM DESCRIPTIONS/GENERAL NOTES

PAGE NOTES:

SUBSTRATE AND SUBSTRATE FASTENER TABLE

ITEM 21, SUBSTRATE			ITEM 20, SUBSTRATE FASTENER									
TYPE	THICKNESS MIN	MATERIAL MIN	TYPE (ALL FASTENERS ARE HEX HEAD STYLE)	MAT'L	DIA.	EDGE MIN	EMBED. MIN	SPACING MAX	SPACING MIN	HEAD DIA. MIN	ANGLE HOLE ITEM 5, MAX	SUBSTRATE HOLE, MAX
WOOD	3	G OF 0.42	LAG SCREW, 3 INCH MIN LENGTH	*	1/4	1 1/2	23/32	5 3/4	3	1/2	5/16	SEE FASTENER MANUFACTURER INSTRUCTIONS
					3/8	1 1/2	23/32	6 1/4	3	5/8	7/16	
STEEL	16 GA (0.056)	Fy 33 KSI Fu 45 KSI	BOLT W/ NUT	*	1/4-20	5/8	0.056	8	1	1/2 HEAD 9/16 NUT	5/16	5/16
								5 5/8		1/2		SEE FASTENER MANUFACTURER INSTRUCTIONS
	14 GA (0.070)		THREAD CUTTING/TAPPING SCREW				0.070	6 3/4				
	12 GA (0.099)						0.099	8				
ALUMINUM	1/8	6063-T5	BOLT W/ NUT	*	1/4-20	1/2	1/8	8	1	1/2 HEAD 9/16 NUT	5/16	1/4
			THREAD CUTTING/TAPPING SCREW							1/2		SEE FASTENER MANUFACTURER INSTRUCTIONS
CONCRETE	VARIES WITH SIZE OF FASTENER USED, SEE FASTENER MANUFACTURER INSTRUCTIONS	2 KSI	BUILDEX TAPCON (BLUE, WHITE, OR 410 SS)	VARIES	1/4	1 1/2	1 1/2	4	2	AS MANUFACTURED	1/4	SEE FASTENER MANUFACTURER INSTRUCTIONS
						2 1/8		6				
		3 KSI			1/4	1 1/2	1 1/4	4	2			
						3		6				
						1 1/2	1 3/4	6				
		2.3 KSI	ELCO AGGRE-GATOR	300 SS	1/4	1 1/2	1 3/8	6	3	AS MANUFACTURED	1/4	
		2.9 KSI	ELCO ULTRACON SS4	410 SS	1/4	1	1 3/4	4	3	AS MANUFACTURED	1/4	
						2 1/2		8				
		3.4 KSI	ELCO CRETE-FLEX SS4, SMALL HEAD	410 SS	1/4	1	1 3/4	6	6	AS MANUFACTURED	1/4	
			ELCO CRETE-FLEX SS4, FLANGED HEAD					8				
		2.5 KSI	POWERS 316 STAINLESS STEEL WEDGE-BOLT	316 SS	1/4	1 3/8	1 7/8	4	1	AS MANUFACTURED	5/16	
						2		6				
					3/8	1 1/8	2 3/8	4			7/16	
						1 5/8		6				
						2 3/8		8				
		2 KSI	POWERS WEDGE-BOLT PLUS	STEEL	1/4	1	1 1/2	4	1	AS MANUFACTURED	5/16	
						1 1/2		6				
						2		8				
		4 KSI				1		4				
						1 1/4		6				
						1 5/8		8				
		2 KSI			3/8	1 1/4		4	1 1/2		7/16	
						1 5/8		6				
						2 1/8		8				
		4 KSI				1 1/8		4				
						1 3/8		6				
						1 3/4		8				
GROUT FILLED CMU	NOTE 1		ELCO AGGRE-GATOR	300 SS	1/4	2	2	8	3	AS MANUFACTURED	1/4	SEE FASTENER MANUFACTURER INSTRUCTIONS
	NOTE 2		ELCO ULTRACON SS4	410 SS	1/4	1	2	2	1 1/2		1/4	
						2.5		6	3			
	NOTE 3		ELCO CRETE-FLEX SS4, FLANGED HEAD	410 SS	1/4	1 3/4	1 1/4	6	6		1/4	
	NOTE 4		POWERS WEDGE-BOLT PLUS	STEEL	3/8	2	2 1/2	8	6		7/16	

NOTE *: LAG SCREWS SHALL HAVE STRENGTHS OF MINIMUM GRADE 1 STEEL, OTHER BOLT AND SCREWS SHALL HAVE STRENGTHS OF MINIMUM GRADE 2 STEEL.

NOTE 1: CONCRETE MASONRY (CMU) SHALL BE > THE FOLLOWING: 6" WIDE, CMU CONFORMING TO ASTM C-90 FILLED WITH 4,747 PSI GROUT.

NOTE 2: CONCRETE MASONRY (CMU) SHALL BE > THE FOLLOWING: 6" WIDE, 2 KSI CMU CONFORMING TO ASTM C-90 FILLED WITH 1624 PSI GROUT.

NOTE 3: CONCRETE MASONRY (CMU) SHALL BE > THE FOLLOWING: 6" WIDE, CONFORMING TO ASTM C-9,0 FILLED WITH 3,350 PSI GROUT.

NOTE 4: CONCRETE MASONRY (CMU) SHALL BE > THE FOLLOWING: 6" WIDE, GRADE N, TYPE II, LIGHT-WEIGHT/MEDIUM-WEIGHT/NORMAL-WEIGHT CMU CONFORMING TO ASTM C-90, MORTAR MUST BE TYPE N.

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By

CHANDER P. NANGIA LICENSE No. 21938 STATE OF FLORIDA PROFESSIONAL ENGINEER
DEC 27 2015

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SCALE 1:1.2 | SHEET NO. 9 OF 9
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TITLE: ESD-635DE NOA DRAWINGS
SUBSTRATE AND ANCHOR TABLE

PAGE NOTES: