# Engineering Evaluation Report # DH5560-TRTN-08202026

**Prepared by:**
A. Lynn Miller, P.E.
1070 Technology Dr.
N. Venice, FL 34275
(941) 480-1600
Florida Registration: #29296

**Manufacturer:**
PGT Custom Windows & Doors
3400 Precision Dr.
N. Venice, FL 34275

**Product Description:**
DH5560 Series Impact-Resistant Vinyl Double Hung Window with Triton Glass, (LMI), FL-7058

**Compliance:**
The above-mentioned product has been evaluated for compliance with the requirements of the Florida Department of Business and Professional Regulation for Statewide Acceptance per Rule 61 G20-3.005 method 1(d). The product listed herein complies with requirements of the current Florida Building Code.

This product has been evaluated and is in compliance with the current Florida Building Code, including the “High Velocity Hurricane Zone” (HVHZ).

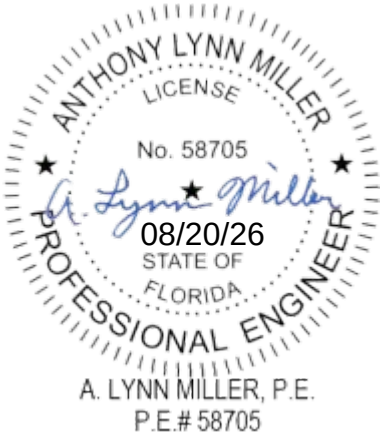
**Supporting Technical Documentation:**
1. Approval Document: Drawing number DH5560-LM-HVHZ-TRTN, signed and sealed by A. Lynn Miller, P.E.
2. Test Report No.: FTL-8006, FTL-8007, signed and sealed by Idalmis Ortega, P.E.
Fenestration Testing Laboratories, Medley, FL
Test Report No.: QAI NOK-0112, NOK-0113, NOK-0114, NOK-0115, signed and sealed by Idalmis Ortega, P.E.
QAI Laboratories, Nokomis, FL

TAS 201-94 Large Missile Impact Test
TAS 202-94 Uniform Static Air Pressure Test
TAS 203-94 Cyclic Pressure Loading Test

3. Calculations, signed and sealed by A. Lynn Miller, P.E.

4. Miami-Dade RER Product Control Section NOA’s; PVB and/or SG Interlayer by Kuraray America, Inc.

**Limitations and Conditions of use:**
• Units must be glazed per ASTM E1300-24, refer to approval document for glazing details.
• This product is rated to be used in the HVHZ.
• This product is impact resistant and does not require impact protection in wind borne debris regions.
• Frame and sash material to be extruded Vinyl.
• Units must be installed in accordance with approval document.



# SERIES OVADO IMPACT RESISTANT DOUBLE HUNG WINDOW WITH TRITON GLASS

1) THIS PRODUCT HAS BEEN ENGINEERED & TESTED TO COMPLY WITH THE REQUIREMENTS OF THE FLORIDA BUILDING CODE, INCLUDING THE ASCE 7-10 WIND-BORNE DEBRIS ZONES.

2) ALL WOOD SUBSTRATE MUST BE A MINIMUM SPECIFIC GRAVITY OF 0.42 AS PER NDS.

3) ALL WOOD SCREWS USED FOR INSTALLATION OF THIS PRODUCT SHALL BE CORROSION RESISTANT AND SHALL PENETRATE THE PRIMARY SUBSTRATE A MINIMUM OF 1-1/2" UNLESS OTHERWISE NOTED. SCREWS SHALL BE SPACED AS SHOWN ON THE APPROVED DRAWINGS AND SHALL NOT BE LOCATED IN THE MULTIPLE LOCKING AREAS OF THE SASH.

4) ANCHOR ASSEMBLY TO BUILDING MATERIAL SHALL BE METHOD FULL EMBEDMENT OF ATTACHING ANCHOR INTO SUPPORTING STRUCTURE AS SPECIFIED IN THE APPROVED DRAWINGS. ANCHOR SPACING SHALL BE AS SHOWN ON THE APPROVED DRAWINGS. ANCHOR INSTALLATION SHALL BE DONE BY OTHERS AND IS BEYOND THE SCOPE OF THESE APPROVALS.

5) THE GLASS, SASHES AND FRAMES OF EACH WINDOW LOCATION WHERE THE PRODUCT IS NOT PLACED TO THE SUBSTRATE, SHALL REMAIN CAPABLE OF TRANSFERRING IMPOSED LOADS.

6) DESIGN PRESSURES:
A. NEGATIVE DESIGN LOADS SHOWN ARE FOR STATIC TESTING & CYCLE TESTING AND GLASS PER LISTED SIZES.
B. POSITIVE DESIGN LOADS SHOWN ON MATRIX TEST PROGRAM, STRUCTURAL & CYCLE TESTING AND GLASS PER MATRIX SIZE.
C. ANALYSIS LOADS ARE BASED ON ALLOWABLE STRESS DESIGN (ASD)

7) THE ENGINEERING METHOD SHOWN HEREIN WERE DESIGNED TO MEET THE WIND LOAD COMBINATIONS TO THE REQUIRED DESIGN PRESSURE. THE GLASS STRESS MAXIMUMS WERE NOT EXCEEDED FOR DESIGN OF THIS PRODUCT. THE FOLLOWING SUBSTRATES WERE USED FOR THE CALCULATION OF WIND LOADS WITH WOOD, MINIMUM 1" THICK CONCRETE OR MASONRY MATERIALS SHALL MEET THE REQUIREMENTS OF THE FLORIDA BUILDING CODE FOR COMPRESSIVE STRENGTH.

8) SPECIAL INSPECTIONS TO WHICH THIS PRODUCT IS SUBJECT: WIND LOAD RESISTANCE PER FLORIDA BUILDING CODE AND TO BE PERFORMED BY THE ARCHITECT OF RECORD OR ENGINEER OF RECORD.

9) APPLICABLE CODES REQUIREMENTS TO BE REVIEWED BY BUILDING OFFICIAL.

10) OPERABLE FLASHING MATERIALS THAT MAY BE CHANGED DURING FIELD INSTALLATION SHALL COMPLY WITH SECTION 1711 OF THE FBC, BUILDING OR SECTION 2711 OF THE IRC.

## USER INSTRUCTIONS:

1) DETERMINE THE WIND BORNE DEBRIS REGION OF THE PROJECT.
2) DETERMINE THE WIND SPEED & MINIMUM DESIGN PRESSURE FOR THE PROJECT.
3) DETERMINE THE INSTALLATION CONDITIONS.
4) REVIEW YOUR GLAZING SPECIFICATIONS TO ENSURE COMPLIANCE WITH THE APPROVED GLAZING SPECIFICATIONS.
5) DETERMINE THE ANCHOR QUANTITY FROM TABLES 6-1 THROUGH 6-11 AND THE ANCHORING METHOD FROM TABLE 6-12.
6) DETERMINE THE ANCHOR QUANTITY FROM TABLES 6-13 THROUGH 6-17 AND THE ANCHORING METHOD FROM TABLE 6-18.
7) REFER TO SHEET 4 FOR INSTALLATION DETAILS.

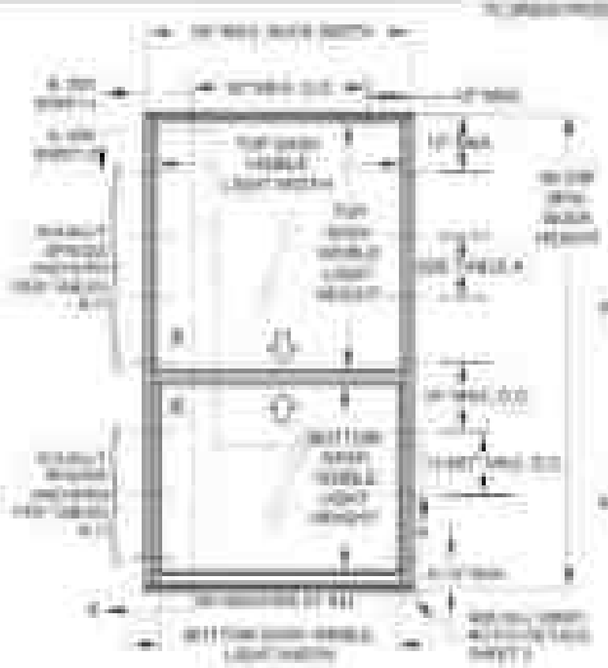
NOTE: DESIGN PRESSURES SHOWN DETERMINED BY THE SAME PROCEDURE FOR ALL FRAME TYPES (CHANNEL, FLANGE, INTEGRAL FIN OR EQUAL LEG FRAME).


| | |
|---|---|
| GENERAL NOTES & ID FEATURES | 1 |
| FRAME, GLASS & HARDWARE OPTIONS | 2 |
| INSTALLATION: FLANGE & EQUAL LEG FRAME | 3 |
| INSTALLATION: INTEGRAL FIN & CHANNEL FRAME | 4 |
| ELEVATIONS | 5 |
| DRAWING & DESIGN PRESSURES | 6 |
| DESIGN PRESSURE TABLES | 7 |
| ANCHOR QUANTITIES | 8-11 |
| EXTRUSION PROFILES | 12 |
| ASSEMBLY & DETAILS | 13-16 |

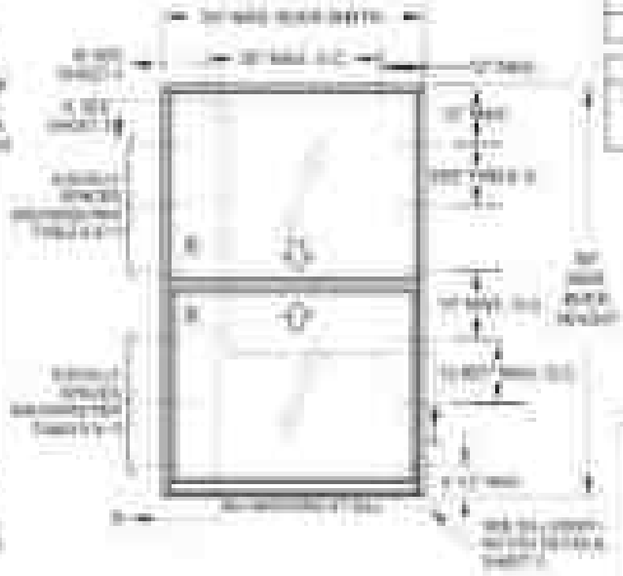

TABLE 5: MAXIMUM U.S. OPENING

| Rated Load | Allowable Maximum Rough |
|---|---|
| [illegible] | [illegible] |
| [illegible] | [illegible] |

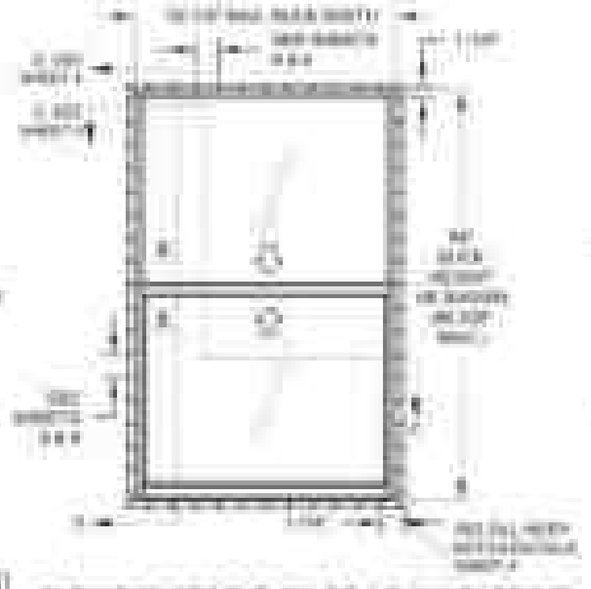
WHERE THE PRODUCT WILL BE INSTALLED WITHIN THE FIRST 24" OF A SWIMMING POOL OR SPA, IT MUST COMPLY WITH SECTION 2111 OF THE IRC, BUILDING OR SECTION 1711 OF THE FBC, RESIDENTIAL.



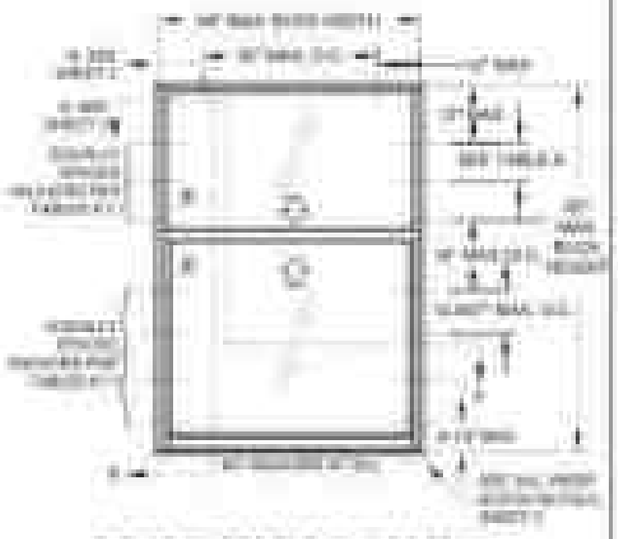
ELEVATION FOR TYP. FLANGE FRAME
SHOWN WITH DIEBUPHDREW CONFIGURATION



ELEVATION FOR TYP. EQUAL LEG FRAME
SHOWN WITH EQUAL LITE CONFIGURATION



ELEVATION FOR TYP. FIN OR J CHANNEL FRAME
SHOWN WITH EQUAL-LITE CONFIGURATION
ANCHORED THROUGH THE NAIL FIN



ELEVATION FOR TYP. FLANGE FRAME
SHOWN WITH STANDARD COTTAGE CONFIGURATION

PGT

Table 1

| Design Type | Design Pressure (see Table 2) | |
|---|---|---|
| 1 | | |
| 2 | | |
| 3 | | |
| 4 | | |
| 5 | | |
| 6 | | |
| 7 | | |

Table 2

| Group | Anchor | Substrate | Min. Edge Distance | Min. Embedment |
|---|---|---|---|---|
| A | | | | |
| B | | | | |
| C | | | | |
| D | | | | |

Table 3

| Group | Anchor | Substrate | Min. Edge Distance | Min. Embedment |
|---|---|---|---|---|
| A | | | | |
| B | | | | |
| C | | | | |
| D | | | | |

| Frame Types (see Fig 5) | Mode Options (see Table 1) | Frame Configs (see Fig 4) | Installation Options that may be used | |
|---|---|---|---|---|
| Fixed (IX) | 1 - 7 | Fixed Lite, Fixed Picture & Casings | Through the frame of the window | |
| Fixed Picture (FW) | 1 - 7 | Fixed Lite, Fixed Picture & Casings | Through the frame of the window | |
| Casement (CW) | 1 - 7 | Fixed Lite, Fixed Picture & Casings | Through the sash/ wedges to | |
| | | | Through the frame of the window | |
| Awning & FIX (AW) | 1 - 7 | Fixed Lite, Fixed Picture & Casings | Through the sash/ wedges to | |
| | | | Through the frame of the window | |

PGT

| | |
|---|---|
| | |
| | |
| | |

# INSTALLATION DETAILS FOR FLANGE & EQUAL-LEG/BOX FRAMES

INSTALLATION OPTION 1

INSTALLATION OPTION 2

INSTALLATION OPTION 3

HORIZONTAL SECTION A-A

VERTICAL SECTION B-B

INSTALLATION OPTION 4

INSTALLATION OPTION 4

PGT

# INSTALLATION DETAILS FOR INTEGRAL FIN & J-CHANNEL FRAMES

INSTALLATION OPTION 2

INSTALLATION OPTION 1

INSTALLATION OPTION 2

HORIZONTAL SECTION C-C

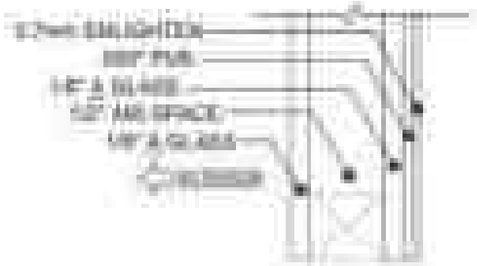
INSTALLATION OPTION 2

INSTALLATION OPTION 1

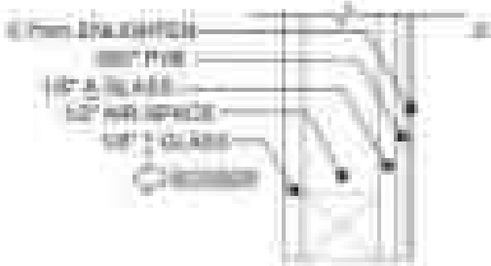
INSTALLATION OPTION 2

VERTICAL SECTION D-D

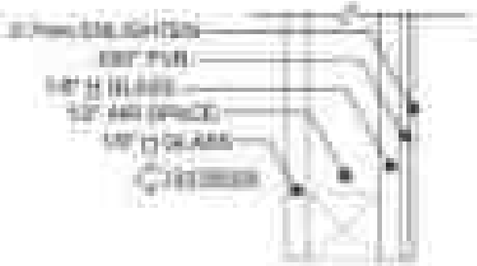
PGT



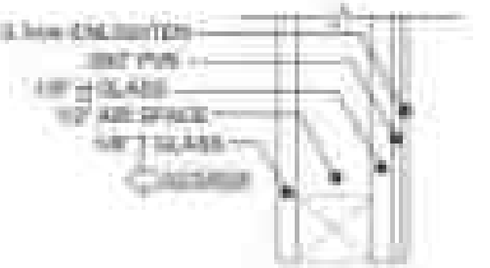
GLASS TYPE 1
7/8" NOM. GLASS STACK



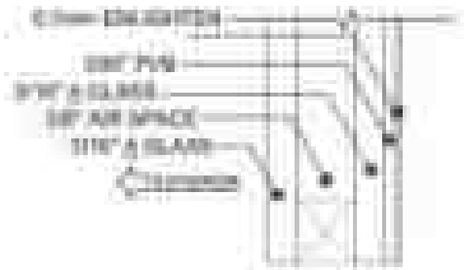
GLASS TYPE 2
7/8" NOM. GLASS STACK



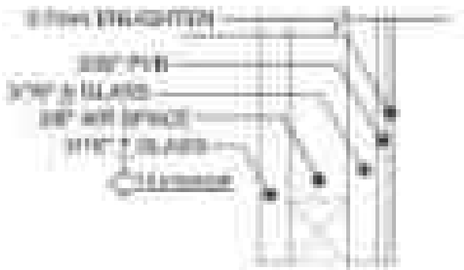
GLASS TYPE 3
7/8" NOM. GLASS STACK



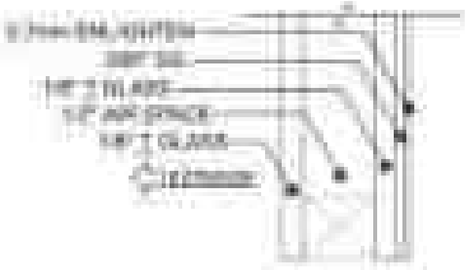
GLASS TYPE 4
7/8" NOM. GLASS STACK



GLASS TYPE 5
7/8" NOM. GLASS STACK



GLASS TYPE 6
7/8" NOM. GLASS STACK



GLASS TYPE 7
7/8" NOM. GLASS STACK

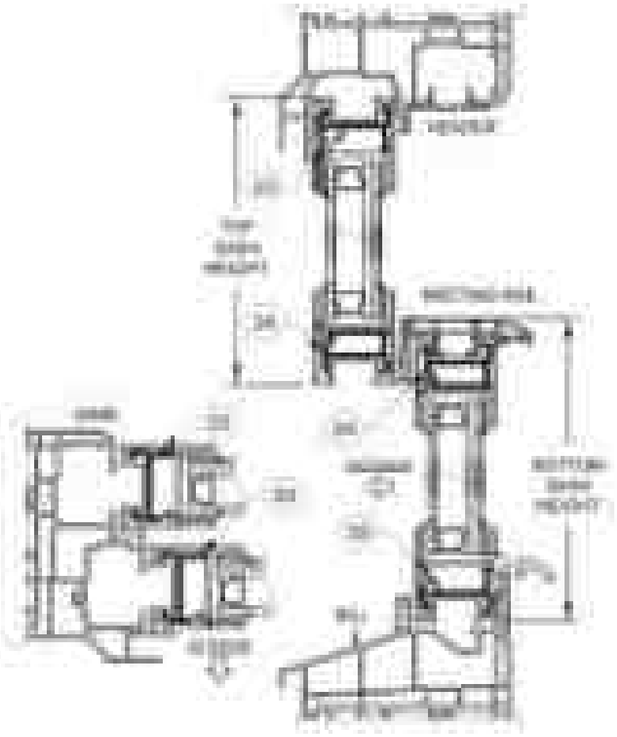


TYP. GLAZING DETAIL

PGT

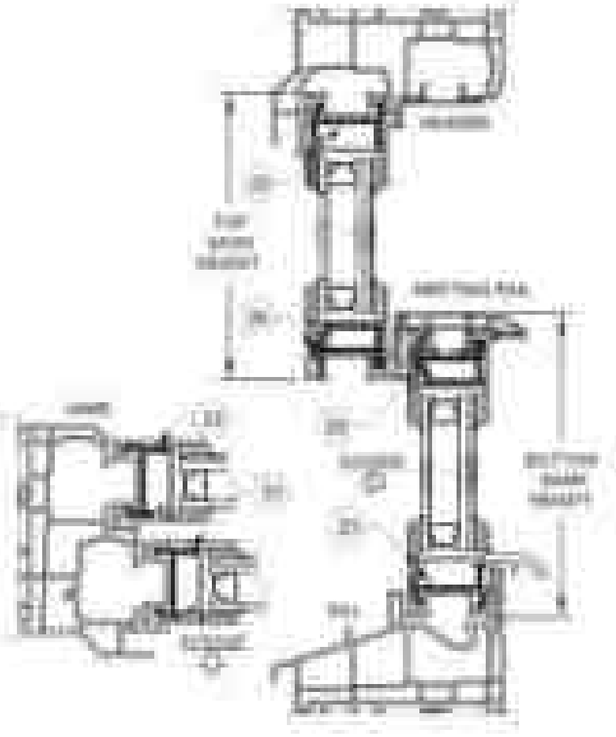


| Wind Speed V (mph) | Design Pressure (psf) |
|---|---|
| | |
| | |



SECTION DETAIL FOR WINDOWS WITH
LEVEL II REINFORCEMENT & GLASS TYPES 1 & 2

| Wind Speed V (mph) | Design Pressure (psf) |
|---|---|
| | |
| | |



SECTION DETAIL FOR WINDOWS WITH
LEVEL III REINFORCEMENT & GLASS TYPES 3-10

NOTES:

1. USE THESE TABLES FOR ALL WINDOWS INSTALLED THROUGH THE PRIMARY OR PERSONAL (7th)

2. FRAME DIMENSIONS ARE BLOCK TO BLOCK HEIGHT & AS PER MANUFACTURER

3. FOR SUBSEQUENT SHAPES, REFER TO THE NEXT AVAILABLE WIDTH OR HEIGHT DIMENSIONS WITHIN THE TABLE

PGT

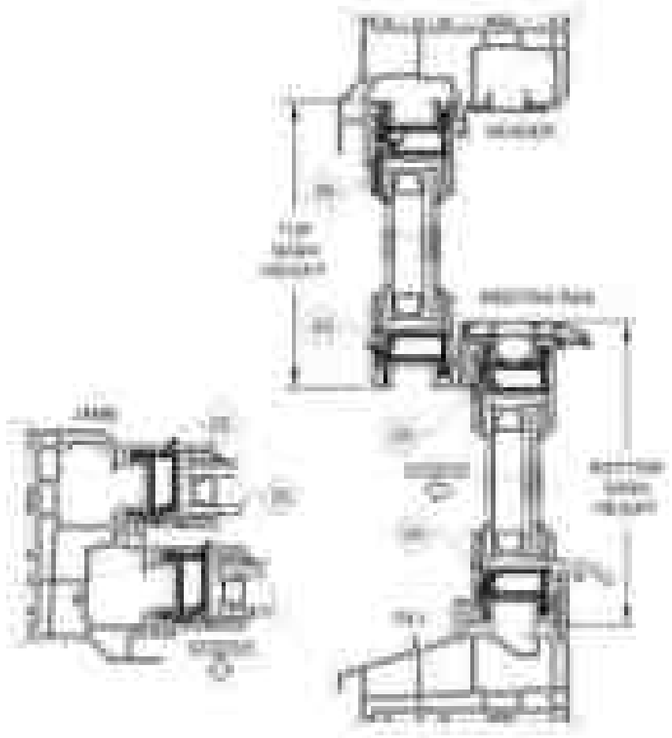
PGT INDUSTRIES

ARCHITECTURAL

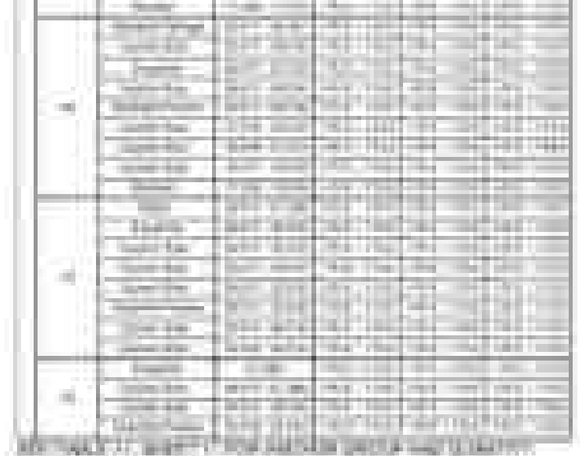
PGT

PGT INDUSTRIES

ARCHITECTURAL



SECTION DETAIL FOR WINDOWS WITH
LEVEL SILL HEIGHT CONDITIONS & GLASS TYPES A-C



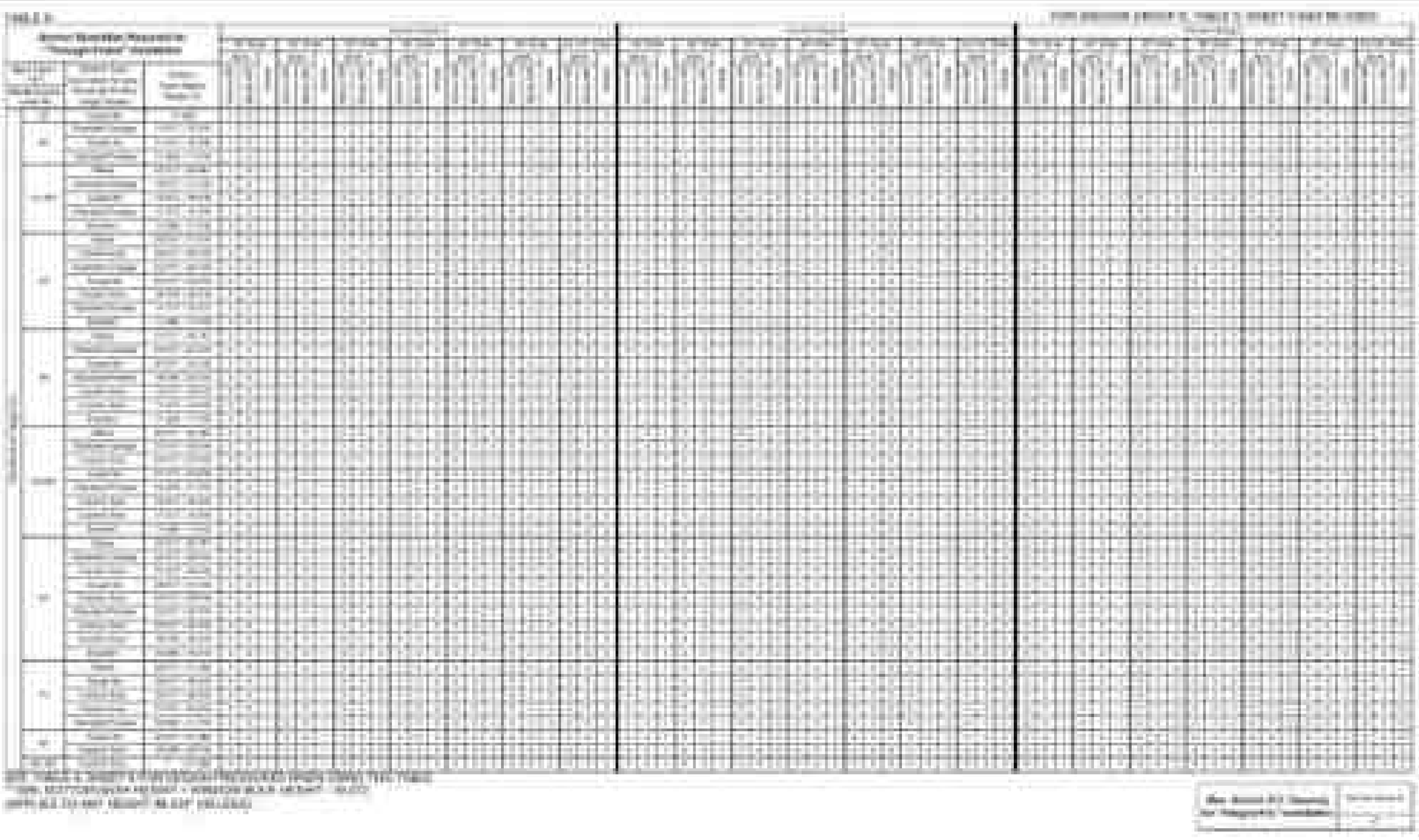


NOTES:

1. USE THESE TABLES FOR WINDOWS INSTALLED THROUGH THE FRAME.
2. FRAME DIMENSIONS ARE SIZE, ROUGH HEIGHT IS AS PER THE FIGURE.
3. FOR SIZES NOT SHOWN, ROUND UP TO THE NEXT AVAILABLE WIDTH OR HEIGHT DIMENSION SHOWN ON THE TABLE.

PGT





NOTES:

1. USE THE ABOVE TERRAIN EQUATIONS REQUIRED ..... TABLE FOR HEADING WITH ALSO THROUGH THE TRIANGLE
2. USE THE ABOVE TABLE BACKGROUND (C ZERO ONE) ..... TABLE FOR BACKGROUND ALSO THROUGH THE NOTICING PIN
3. FRAME DIMENSIONS ARE SLOPE, NOT HEIGHTING MIN.
4. FOR HOUSE NOT SHOWN, ROUND UP TO THE NEXT AVAILABLE WIDTH OR HEIGHT DIMENSION SHOWN IN THE TABLE.
5. REFER TO TABLE 2.1 to 1 SHEET 1 FOR WINDOW SPECIFICATIONS.

PGT

PGT INDUSTRIES
1070 TAMIAMI TRAIL
NORTH PORT, FL 34287

WIND BORNE DEBRIS REGION

SHEET NO.

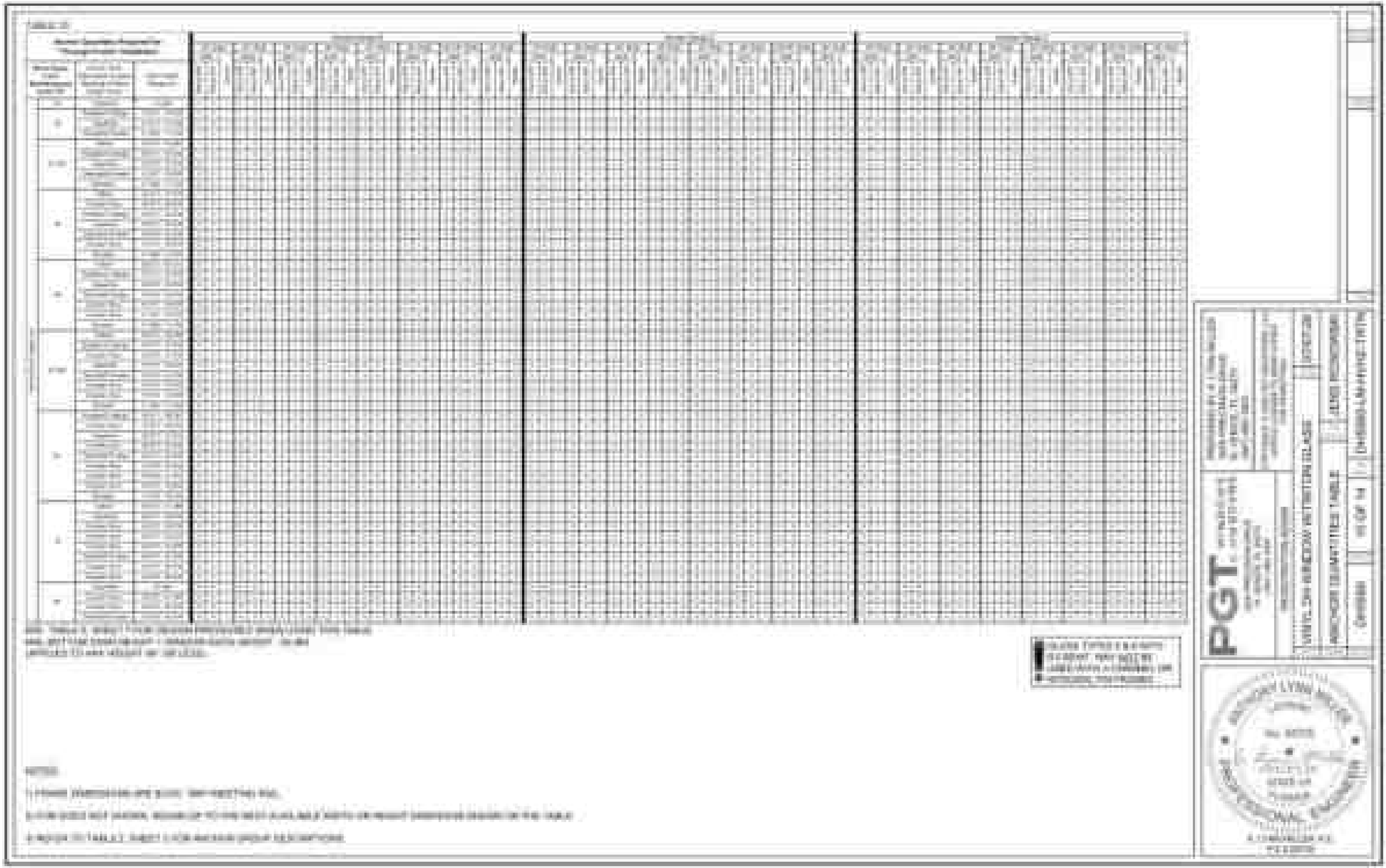
PRODUCT APPROVAL

STATE OF FLORIDA

TABLE 2.1

**Monolithic Casement Window with "Through Frame" Installation**

| Design Pressure (DP) | Tested Size (Width x Height) | Glass Thickness | Glass Type | Glass Coating | Glass Spacer | Glass Gas Fill | Glass Strength | Glass Quantity | Glass Configuration | Glass Overall Thickness | Glass Overall Width | Glass Overall Height | Glass Weight | Glass Area | Glass Perimeter | Glass Edge Clearance | Glass Bite | Glass Engagement | Glass Setting Block Location | Glass Setting Block Size | Glass Setting Block Hardness | Glass Setting Block Material |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | |

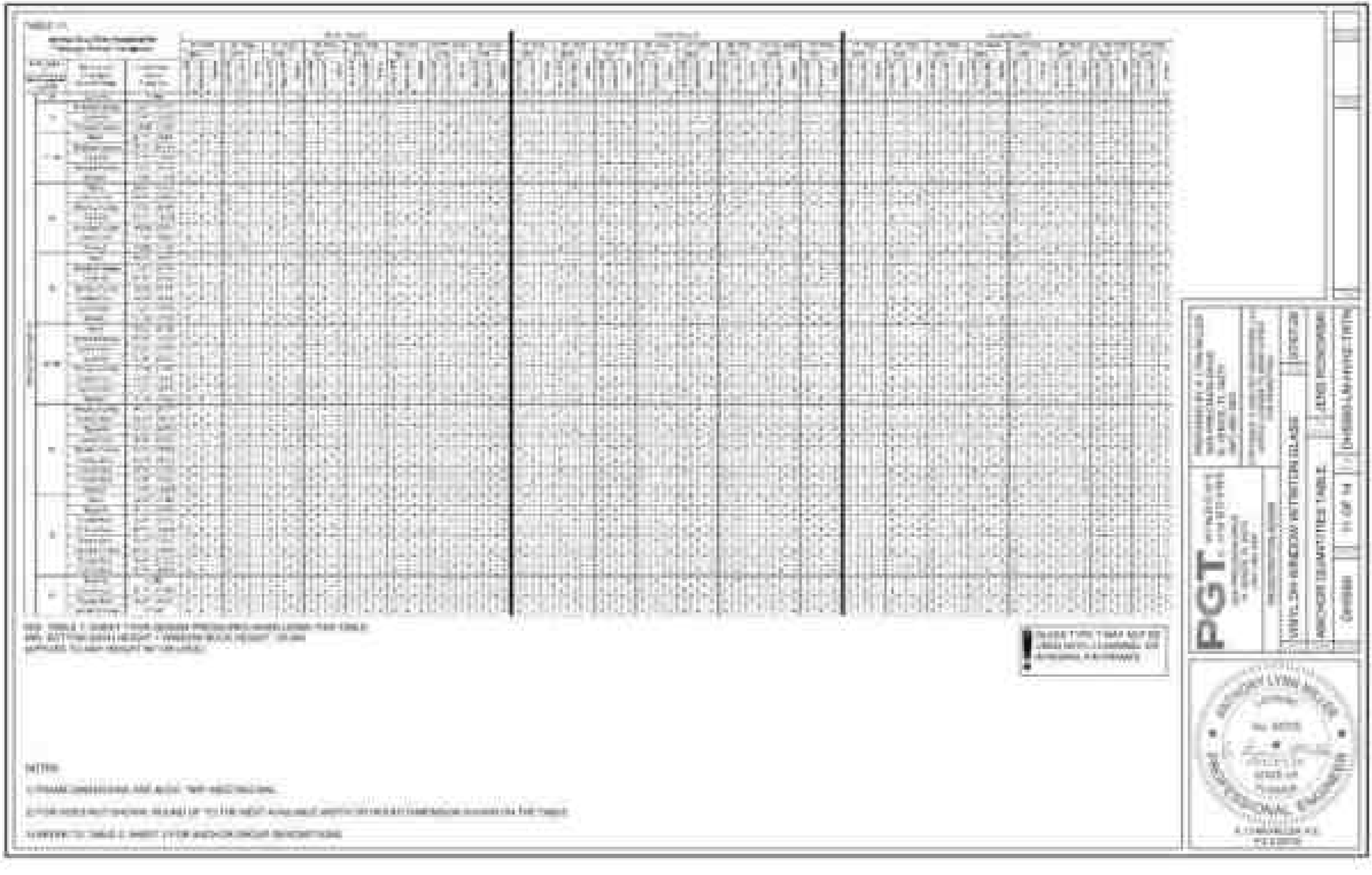


NOTES:

1. [illegible]

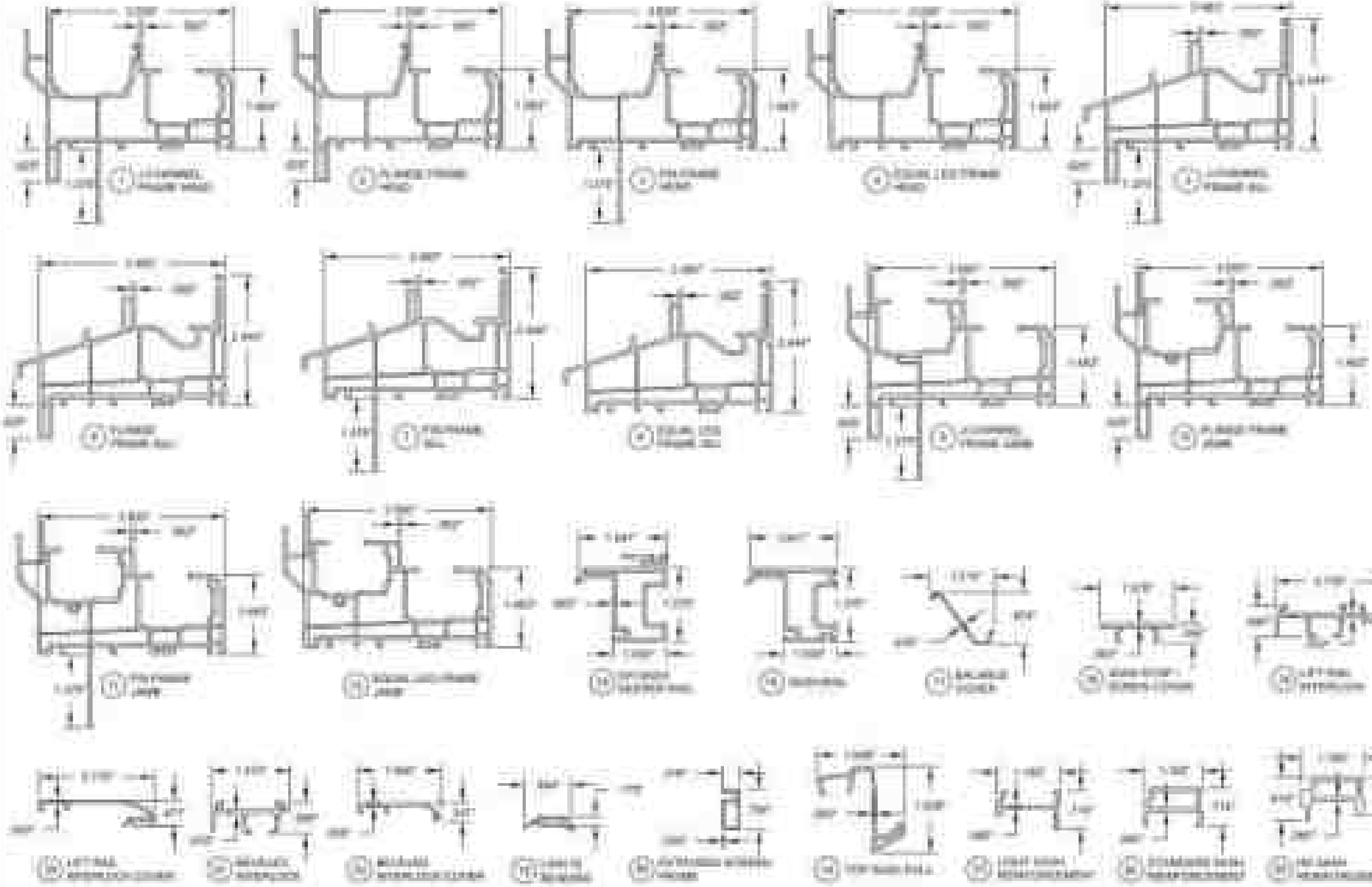
2. [illegible]

3. [illegible]



PGT

NOTES:



PGT

| ITEM | PART # | DESCRIPTION | MATERIAL |
|---|---|---|---|
| 1 | [illegible] | [illegible] | [illegible] |
| 2 | [illegible] | [illegible] | [illegible] |
| 3 | [illegible] | [illegible] | [illegible] |
| 4 | [illegible] | [illegible] | [illegible] |
| 5 | [illegible] | [illegible] | [illegible] |
| 6 | [illegible] | [illegible] | [illegible] |
| 7 | [illegible] | [illegible] | [illegible] |
| 8 | [illegible] | [illegible] | [illegible] |
| 9 | [illegible] | [illegible] | [illegible] |
| 10 | [illegible] | [illegible] | [illegible] |
| 11 | [illegible] | [illegible] | [illegible] |
| 12 | [illegible] | [illegible] | [illegible] |
| 13 | [illegible] | [illegible] | [illegible] |
| 14 | [illegible] | [illegible] | [illegible] |
| 15 | [illegible] | [illegible] | [illegible] |
| 16 | [illegible] | [illegible] | [illegible] |
| 17 | [illegible] | [illegible] | [illegible] |
| 18 | [illegible] | [illegible] | [illegible] |
| 19 | [illegible] | [illegible] | [illegible] |
| 20 | [illegible] | [illegible] | [illegible] |
| 21 | [illegible] | [illegible] | [illegible] |
| 22 | [illegible] | [illegible] | [illegible] |
| 23 | [illegible] | [illegible] | [illegible] |
| 24 | [illegible] | [illegible] | [illegible] |
| 25 | [illegible] | [illegible] | [illegible] |
| 26 | [illegible] | [illegible] | [illegible] |
| 27 | [illegible] | [illegible] | [illegible] |
| 28 | [illegible] | [illegible] | [illegible] |
| 29 | [illegible] | [illegible] | [illegible] |
| 30 | [illegible] | [illegible] | [illegible] |
| 31 | [illegible] | [illegible] | [illegible] |
| 32 | [illegible] | [illegible] | [illegible] |
| 33 | [illegible] | [illegible] | [illegible] |
| 34 | [illegible] | [illegible] | [illegible] |

NOTE(S):

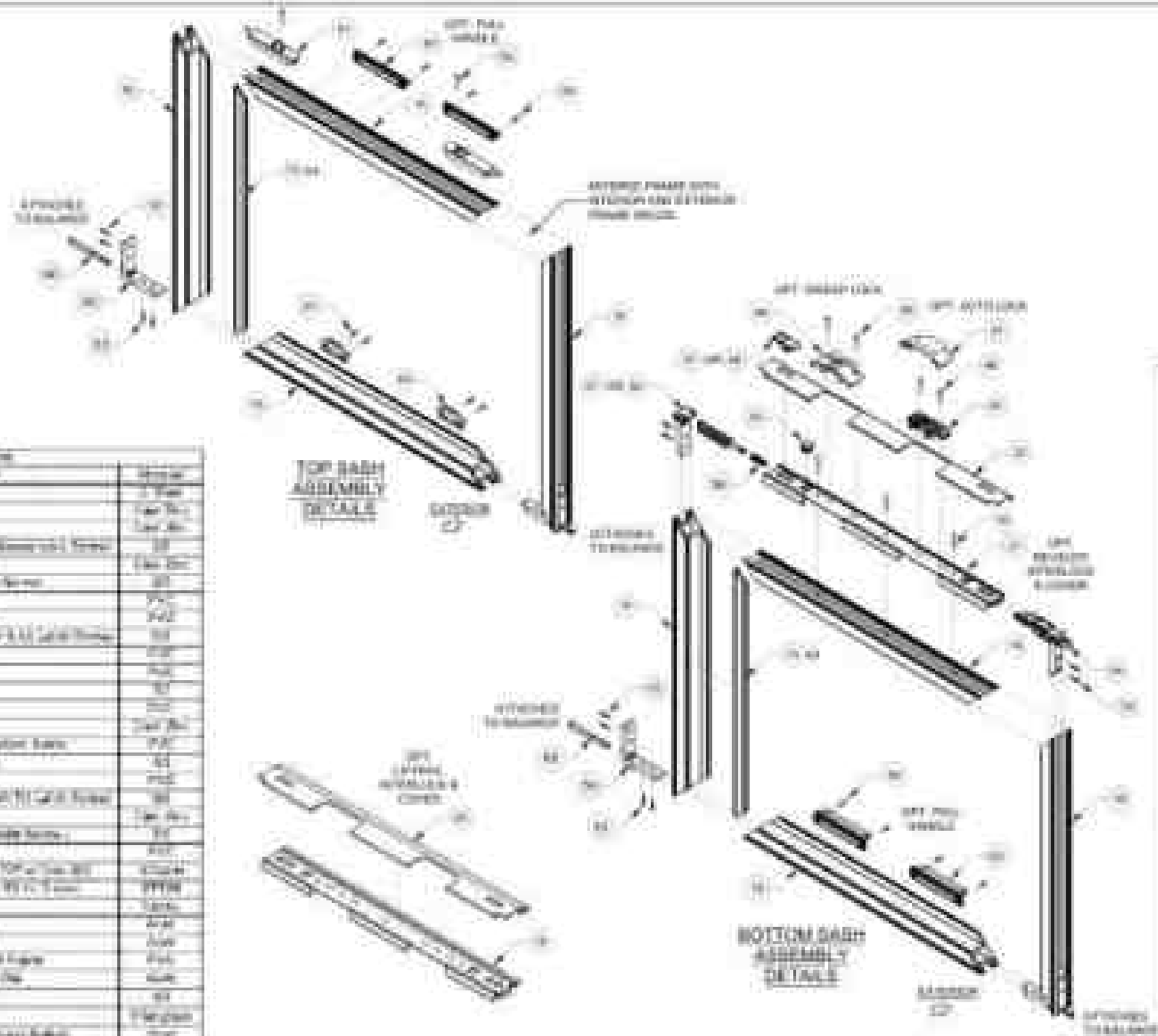
SCREEN ASSEMBLY DETAILS

FRAME ASSEMBLY DETAILS

PGT

[illegible]

| # | Type # | Description | Remarks |
|---|---|---|---|
| 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 | | | |
| 37 | | | |




PGT