



December 22, 2022

Muhammad Zaman  
Northcentral Regional Air Quality Program Manager  
Pennsylvania Department of Environmental Protection  
Northcentral Regional Office  
208 West Third Street, Suite 101  
Williamsport, PA 17701-6448

**Re: Notification of RACT III Applicability [25 Pa. Code §129.115(a)] and Alternative RACT Compliance Analysis [25 Pa. Code §129.114(i)]  
Title V Operating Permit No. 08-00003  
JELD-WEN, Inc. – Towanda, Bradford County, PA**

Dear Mr. Zaman:

JELD-WEN, Inc. (JELD-WEN) is providing this summary of Reasonably Available Control Technology (RACT) compliance plans for the JELD-WEN facility located in Towanda, Bradford County, Pennsylvania (Facility) in accordance with 25 Pa. Code §§129.111-129.115 (RACT III). This document is the notification of applicability and compliance proposal required under 25 Pa. Code §129.115(a). The Facility is a major source of nitrogen oxides (NO<sub>x</sub>) and volatile organic compound (VOC) emissions. This document also includes the analyses required under 25 Pa. Code §129.114(i) for the affected source at the Facility for which an alternative RACT determination was previously approved by the Pennsylvania Department of Environmental Protection (PADEP) under 25 Pa. Code §129.99.

### **Facility Background and RACT III Rule Applicability**

JELD-WEN owns and operates a facility that manufactures molded hardboard panels for interior doors. Exterior trim products are also produced in widths ranging from 2 to 16 inches by 16 feet long and in nominal 4 feet by 8 feet panels. The Facility operates under Title V Operating Permit (TVOP) No. 08-00003.

On November 12, 2022, PADEP published the RACT III rule at 25 Pa. Code §§129.111-129.115. The RACT III requirements or emissions limitations supersede the requirements or emissions limitations of a RACT permit previously issued in accordance with 25 Pa. Code §§129.91-129.95 and 129.96-129.100, except in cases where an existing RACT permit specifies more stringent requirements and/or emissions limitations. Compliance with applicable RACT III Rule requirements or emissions limitations must be demonstrated no later than January 1, 2023.

The RACT III Rule applies to major NO<sub>x</sub> and/or major VOC emitting facilities. 25 Pa. Code §121.1 defines major NO<sub>x</sub> and VOC emitting facilities as follows:

- Major NO<sub>x</sub> emitting facility – a facility-wide NO<sub>x</sub> potential to emit (PTE) of greater than 100 tons per year (tpy).
- Major VOC emitting facility – a facility-wide VOC PTE of greater than 50 tpy.

The Facility is a major NO<sub>x</sub> and VOC emitting facility and is subject to the applicable provisions of RACT III under 25 Pa. Code §129.111(a).

### **Notification of Applicability and Compliance Proposal [25 Pa. Code §129.115(a)]**

The following subsections provide the notification of applicability and compliance proposal required under 25 Pa. Code §129.115(a).

#### ***25 Pa. Code §129.115(a)(1) – Submission Deadline***

Because the Facility was a major NO<sub>x</sub> and VOC emitting facility prior to August 3, 2018, this submittal is being made on or before December 31, 2022, in accordance with 25 Pa. Code §129.115(a)(1)(i).

#### ***25 Pa. Code §129.115(a)(2) – Identification of Air Contamination Sources That Commenced Operation on or Before August 3, 2018***

Tables A-1 and A-2 of Attachment A provide the RACT III Rule Applicability Summary for NO<sub>x</sub> and VOC, respectively. Tables A-1 and A-2 identify the following:

- Air contamination sources that are subject to a presumptive RACT requirement or RACT emissions limitation under 25 Pa. Code §129.112
- Air contamination sources that are subject to an alternative RACT requirement or RACT emissions limitation under 25 Pa. Code §129.114

Tables A-3 and A-4 of Attachment A identify the NO<sub>x</sub> and VOC sources, respectively, that are exempt from RACT III and the basis for their exemption as follows:

- Air contamination sources that are exempt from 25 Pa. Code §§129.112-114 because they emit less than 1 tpy of NO<sub>x</sub> and/or less than 1 tpy of VOC, in accordance with 25 Pa. Code §129.111(c)
- Air contamination sources that are exempt from 25 Pa. Code §§129.112-114 because they are already subject to certain Chapter 129 RACT requirements [i.e., §§129.51, 129.52(a)-(k) and Table I categories 1-11, 129.52a-129.52e, 129.54-129.63a, 129.64-129.69, 129.71-129.75, 129.77, and 129.101-129.107], in accordance with 25 Pa. Code §129.111(a)

One small natural gas fired oven [3.1 million British thermal units per hour (MMBtu/hr)] in Source ID 189P (LAP Siding Coating Operations) commenced operation after August 3, 2018 and is not subject to RACT III in accordance with 25 Pa. Code §129.111(a).

***25 Pa. Code §129.115(a)(3) – Identification of Air Contamination Sources That Commenced Operation After August 3, 2018***

Because the Facility was a major NO<sub>x</sub> and VOC emitting facility prior to August 3, 2018, 25 Pa. Code §129.111(b) does not apply.

***25 Pa. Code §129.115(a)(4) – Identification of Air Contamination Sources That Emit Less Than 1 TPY***

Tables A-3 and A-4 of Attachment A identify the air contamination sources at the Facility that emit less than 1 tpy of NO<sub>x</sub> and less than 1 tpy of VOC, respectively. The corresponding PTE calculation is shown in Tables A-5 and A-6.

***25 Pa. Code §129.115(a)(5) – Air Contamination Source Information (Commenced Operation on or Before August 3, 2018)***

A Source Inventory that includes a description, make, model, and location (as available) of each RACT III affected source at the Facility is included in Table A-7 of Attachment A. The applicable RACT requirement or RACT emissions limitation for each source and the method of compliance is provided in the RACT III Rule Applicability Summary as Tables A-1 and A-2 of Attachment A.

For several affected sources at the Facility which require alternative RACT determinations, JELD-WEN has determined that the alternative RACT requirements and/or RACT emissions limitations that were previously approved by PADEP under 25 Pa. Code §129.99(e) continue as RACT for each source (See Table 1). None of the sources listed in Table 1 have been changed or modified since they were previously approved under 25 Pa. Code §129.99(e). The required analyses conducted in accordance with 25 Pa. Code §129.114(i) are provided below. JELD-WEN proposes to comply with the RACT III Rule by continuing to comply with the applicable RACT conditions of the current TVOP No. 08-00003. JELD-WEN will meet the January 1, 2023, compliance deadline of the RACT III Rule through continued compliance with these conditions.

***25 Pa. Code §129.115(a)(6) – Air Contamination Source Information (Commenced Operation After August 3, 2018)***

Because the Facility was a major NO<sub>x</sub> and VOC emitting facility prior to August 3, 2018, 25 Pa. Code §129.115(a)(6) does not apply.

**25 Pa. Code §129.115(a)(7) – Air Contamination Source Information (Sources That Emit Less Than 1 TPY)**

A Source Inventory that includes a description, make, model, and location (as available) of each air contamination sources that have a potential to emit less than 1 tpy of NO<sub>x</sub> and less than 1 tpy of VOC is included in Table A-7 of Attachment A. The basis for each exemption determination is provided in Tables A-3 and A-4 for each exempt source in accordance with 25 Pa. Code §129.115(a)(7)(ii).

**Analysis of Alternative RACT Compliance [25 Pa. Code §129.114(c) and (i)]**

Several RACT III affected sources at the Facility are not subject to presumptive RACT requirements under 25 Pa Code §129.112 and require alternative RACT determinations and proposed RACT for control of VOC emissions in accordance with 25 Pa Code §129.114(c). JELD-WEN has developed alternative RACT analyses in accordance with 25 Pa Code §129.114(c) under the provisions of 25 Pa Code §129.114(i) for the sources identified in Table 1. The alternative RACT requirements or limitations previously approved by PADEP under 25 Pa Code §129.99(e) for the sources identified in Table 1 ensure compliance with the provisions in 25 Pa Code §§129.114(a)-(c) and (e)-(h). The information provided herein for the sources identified in Table 1 meets the requirements of 25 Pa Code §129.114(i).

**Table 1  
Summary of Sources that Require Alternative RACT Determinations and Meet  
25 Pa. Code §129.114(i)**

Source ID	Source Name	Pollutant	RACT III Citation
141P	Line I Refiners And 1st Stage Dryers	VOC	25 Pa. Code §129.114(c)
142P	Line II First Stage Dryers	VOC	
	Line II Press Cavity Steam Condenser	VOC	
161P	Line I Second Stage Dryers	VOC	
162P	Line II Second Stage Dryers	VOC	
171P	Line 1 Press	VOC	
172P	Line 2 Press	VOC	
184P	Die Form Press	VOC	
191P	Line I Tempering	VOC	
193P	Die Form Tempering	VOC	
200P	Woodyard	VOC	
201P	Wood Waste Storage Pile	VOC	
600P	Process Water Treatment Plant (PWTP)	VOC	

***25 Pa. Code §129.114(i)(1)(i)(A) – Identification of New Air Cleaning Devices, Air Pollution Control Technologies, or Techniques***

JELD-WEN has reviewed entries into the RACT/Best Available Control Technology (BACT)/Lowest Achievable Emissions Rate (LAER) Clearinghouse (RBLC) to determine if any new technologies are available that can be applied to the sources identified in Table 1. This review of RBLC entries focused on the following source types:

- 20.200 – Industrial Wastewater Treatment (Source ID 600P)
- 30.310 – Plywood Dryers (Source IDs 141P, 142P, 161P, and 162P)
- 30.320 – Plywood Presses (Source IDs 171P, 172P, and 184P)
- 30.510 – Board Manufacturing Material Handling (Source IDs 191P, 193P, 200P, and 201P)
- 30.520 – Board Presses (Source IDs 171P, 172P, and 184P)
- 30.530 – Board Manufacturing Dryers (Source IDs 141P, 142P, 161P, and 162P)

Based on process knowledge and conversations with industry engineers and equipment vendors, JELD-WEN has concluded that no fundamentally different air pollution control devices or technologies are being achieved in practice for the operations identified in Table 1 since the previous alternative analyses completed under RACT II, 25 Pa. Code §129.99(d). Based on the evaluation described above, JELD-WEN has determined that there are no new control technologies available for VOC control for the sources identified in Table 1.

***25 Pa. Code §129.114(i)(1)(i)(B) – List Previously-Identified Technically Feasible Controls***

The technically feasible air pollution control technologies, previously identified under 25 Pa. Code §§129.92(b)(1)-(3), that were included in JELD-WEN's 25 Pa. Code §129.99(d) alternative RACT analysis are the following:

Source IDs 141P, 142P, 193P:

- An additional regenerative thermal oxidizer (RTO)
- Regenerative catalytic oxidizer (RCO)

An RTO is currently being used to abate VOC emissions from Source IDs 141P, 142P, and 193P.

Source IDs 161P, 162P, 171P, 172P, 184P, and 191P:

- RTO
- RCO
- Biofilters

Ducon Centrifugal Scrubbers are currently in use on Source IDs 161P and 162P. Koch Tray Towers and Venturi Scrubbers are currently in use on Source IDs 171P and 172P, while only Venturi Scrubbers are used on Source IDs 184P. Source ID 191P currently uses both Venturi Scrubbers and an RTO to control VOC emissions, therefore, Source ID 191P was evaluated for an additional RTO.

Source ID 200 listed an enclosed RTO, RCO, process incineration, and silo as technically feasible control technologies. The silo is an enclosure that would capture all the wood chips and VOCs emitted from the process. The alternative analysis for Source ID 201P listed a flare and to remove the fiber pile as technically feasible control technologies; JELD-WEN agreed to remove the fiber pile by August 31, 2025. The alternative analysis for Source ID 600 listed an enclosed RTO, RCO, biofilters, and an enclosure around the primary clarifiers as technically feasible control technologies.

#### ***25 Pa. Code §129.114(i)(1)(i)(C) – Summary of Previous Economic Feasibility Analyses***

As part of JELD-WEN’s RACT II submittal, JELD-WEN performed analyses under 25 Pa. Code §129.99(d) to determine which, if any, of the technically feasible control technologies identified for each unit in Table A-8 were economically feasible using the methods presented in the “EPA Air Pollution Control Cost Manual” (Sixth Edition, EPA/452/B-02-0001, January 2002), as amended. The corresponding cost effectiveness for each technically feasible air cleaning device, air pollution control technology or technique as submitted under 25 Pa. Code §129.99(d) are provided in Table A-8.

#### ***25 Pa. Code §129.114(i)(1)(i)(D) – Statement of Economic Infeasibility***

Based on the summaries of economic feasibility provided herein in accordance with 25 Pa. Code §129.114(i)(1)(i)(C), JELD-WEN has demonstrated that the cost effectiveness of the technically feasible control strategies provided under 25 Pa. Code §129.99(d), remain equal to or greater than \$12,000 per ton of VOC emissions. When considering the increases to the cost of fuel and inflation as indicated by the Consumer Price Index (CPI), the overall control costs expressed in 2022 dollars are only expected to have increased, and the control technologies for which cost effectiveness was evaluated in JELD-WEN’s 25 Pa. Code §129.99(d) RACT II submittal remain economically infeasible.

#### ***25 Pa. Code §129.114(i)(1)(i)(E) – Additional Information***

JELD-WEN will provide additional information to support the Alternative RACT Compliance Analysis included herein if requested by PADEP.

#### ***Alternative RACT Compliance Summary***

Based on the 25 Pa. Code §129.114(i) analysis provided herein, JELD-WEN has determined that the alternative RACT requirements and/or RACT emissions limitations previously approved by PADEP under 25 Pa. Code §129.99(e) continue to be RACT for the sources evaluated. JELD-WEN proposes to comply with the RACT III Rule by continuing to comply with the applicable RACT conditions of TVOP No. 08-00003. JELD-WEN will meet the January 1, 2023 compliance deadline of the RACT III Rule through continued compliance with these conditions.

***Certification of Alternative RACT Compliance Analysis***

I certify under penalty of law that, based on information and belief formed after reasonable inquiry, the statements and information contained in this 25 Pa. Code §129.114(i) Alternative RACT Compliance Analysis are true, accurate, and complete.

John D. Stackpole – Plant Manager  
Responsible Official Name


  
Signature

**RACT III Rule Compliance and Recordkeeping**

In accordance with 25 Pa. Code §129.115(f), JELD-WEN will keep sufficient records to demonstrate compliance with the RACT III Rule including continued compliance with the RACT-specific recordkeeping conditions of the TVOP. In accordance with 25 Pa. Code §129.115(i), JELD-WEN will record each adjustment conducted under the procedures in §129.112(b) for combustion units subject to §129.112(b). In accordance with 25 Pa. Code §129.115(k), JELD-WEN will maintain all records for at least five years, and will make them available to PADEP upon receipt of a written request. Compliance with applicable RACT III Rule requirements or emissions limitations must be demonstrated no later than January 1, 2023.

In accordance with 25 Pa. Code §129.115(a), JELD-WEN is submitting this letter to PADEP no later than December 31, 2022. Please contact me at (570) 268-8737 or via email at [LStevens@jeldwen.com](mailto:LStevens@jeldwen.com) if you have any additional questions.

Sincerely,  
**JELD-WEN, Inc.**

  
Lance Stevens  
Environmental Manager

cc: Frank Dougherty (ALL4)  
Roy Rakiewicz (ALL4)

Attachment A: RACT III Rule Applicability Summary Tables

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**ATTACHMENT A -  
RACT III RULE APPLICABILITY SUMMARY TABLES**

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**Table A-1**  
**RACT III Rule NO<sub>x</sub> Applicability Summary**  
**JELD-WEN, Inc. - Towanda, PA**

Source ID	Source Name	Source Capacity/ Throughput	Fuel/ Throughput Material	NO <sub>x</sub> PTE	RACT III Applicability		
		MMBTU/hr			Classification	Citation	NO <sub>x</sub> Limitation/ Requirement
031	Union Iron Works (Boiler 1)	82.4	Natural Gas	3.6 tpy	A NO <sub>x</sub> air contamination source that has the potential to emit less than 5 TPY of NO <sub>x</sub>	§129.112(c)(1)	Shall install, maintain, and operate the source in accordance with the manufacturer's specifications and with good operating practices as demonstrated through Facility preventative maintenance system and associated recordkeeping.
033	B & W Boiler (Boiler 3)	273.2	Natural Gas and Wood	201.7 tpy	A combustion unit firing multiple fuels.	§129.112(g)(4)	30-day rolling average  0.10 lb/MMBtu (for natural gas) and 0.25 lb/MMBtu (for wood)  $E_{HIweighted} = (E_{ng}H_{ing} + E_wH_{iw}) / (H_{ing} + H_{iw})$
099	Small Combustion Units (7 Units)	<10	Natural Gas	4.3 tpy	A boiler or other combustion source with an individual rated gross heat input less than 20 MMBtu/hour	§129.112(c)(4)	Shall install, maintain, and operate the source in accordance with the manufacturer's specifications and with good operating practices as demonstrated through Facility preventative maintenance system and associated recordkeeping.
	Small Combustion Units (5 Units)	2.3 to < 10	Natural Gas	4.3 tpy			
	Small Combustion Units (55 Units)	<2.3	Natural Gas	<1 tpy	N/A - Meets exemption criteria of §129.111(c) because PTE less than 1 tpy NO <sub>x</sub>		
	Small Combustion Units (6 Units)	≤0.185	No. 2 Fuel Oil	<1 tpy			
141P	Combustion Source for Line 1 First Stage Dryer	12.0	Natural Gas	7.7 tpy	A boiler or other combustion source with an individual rated gross heat input less than 20 MMBtu/hour	§129.112(c)(4)	Shall install, maintain, and operate the source in accordance with the manufacturer's specifications and with good operating practices as demonstrated through Facility preventative maintenance system and associated recordkeeping.
	RTO for Line 1 First Stage Dryer	10.697	Natural Gas	4.8 tpy	A thermal oxidizer used primarily for air pollution control	§129.112(c)(8)	
142P	RTO for Line 2 First Stage Dryer	12.322	Natural Gas	5.6 tpy	A thermal oxidizer used primarily for air pollution control	§129.112(c)(8)	Shall install, maintain, and operate the source in accordance with the manufacturer's specifications and with good operating practices as demonstrated through Facility preventative maintenance system and associated recordkeeping.

**Table A-1**  
**RACT III Rule NO<sub>x</sub> Applicability Summary**  
**JELD-WEN, Inc. - Towanda, PA**

Source ID	Source Name	Source Capacity/ Throughput	Fuel/ Throughput Material	NO <sub>x</sub> PTE	RACT III Applicability		
		MMBTU/hr			Classification	Citation	NO <sub>x</sub> Limitation/ Requirement
161P	Line I Second Stage Dryer Combustion Sources (4 Units)	15.0	Natural Gas	9.7 tpy	A boiler or other combustion source with an individual rated gross heat input less than 20 MMBtu/hour	§129.112(c)(4)	Shall install, maintain, and operate the source in accordance with the manufacturer's specifications and with good operating practices as demonstrated through Facility preventative maintenance system and associated recordkeeping.
162P	Line II Second Stage Dryer Combustion Sources (4 Units)	18.0	Natural Gas	11.6 tpy	A boiler or other combustion source with an individual rated gross heat input less than 20 MMBtu/hour	§129.112(c)(4)	Shall install, maintain, and operate the source in accordance with the manufacturer's specifications and with good operating practices as demonstrated through Facility preventative maintenance system and associated recordkeeping.
187P	Die Form Coating High Velocity Hot Air (HVHA) Oven	3.10	Natural Gas	0.8 tpy	N/A - Meets exemption criteria of §129.111(c) because PTE less than 1 tpy NO <sub>x</sub>		
	Die Form Coating Infrared Oven	1.32	Natural Gas	0.3 tpy			
	Die Form Coating Infrared Oven	1.15	Natural Gas	0.3 tpy			
	Die Form Coating HVHA Oven	1.50	Natural Gas	0.5 tpy			
188P	Coating I Infrared Oven	3.65	Natural Gas	0.9 tpy	N/A - Meets exemption criteria of §129.111(c) because PTE less than 1 tpy NO <sub>x</sub>		
	Coating I Infrared Oven	2.95	Natural Gas	0.8 tpy			
	Coating I HVHA Oven	4.50	Natural Gas	1.4 tpy	A boiler or other combustion source with an individual rated gross heat input less than 20 MMBtu/hour	§129.112(c)(4)	Shall install, maintain, and operate the source in accordance with the manufacturer's specifications and with good operating practices as demonstrated through Facility preventative maintenance system and associated recordkeeping.
	Coating I HVHA Oven	3.50	Natural Gas	1.1 tpy			
189P	MiraTEC Second Pass Coating Infrared Oven	5.31	Natural Gas	1.4 tpy	A boiler or other combustion source with an individual rated gross heat input less than 20 MMBtu/hour	§129.112(c)(4)	Shall install, maintain, and operate the source in accordance with the manufacturer's specifications and with good operating practices as demonstrated through Facility preventative maintenance system and associated recordkeeping.
	MiraTEC Second Pass Coating Infrared Oven	3.15	Natural Gas	0.8	N/A - Meets exemption criteria of §129.111(c) because PTE less than 1 tpy NO <sub>x</sub>		
	MiraTEC Second Pass Coating HVHA Ovens (3 Units)	3.13	Natural Gas	0.99			

**Table A-1**  
**RACT III Rule NO<sub>x</sub> Applicability Summary**  
**JELD-WEN, Inc. - Towanda, PA**

Source ID	Source Name	Source Capacity/ Throughput	Fuel/ Throughput Material	NO <sub>x</sub> PTE	RACT III Applicability		
		MMBTU/hr			Classification	Citation	NO <sub>x</sub> Limitation/ Requirement
191P	Line I Tempering Kiln Burners (2 Units)	12.7	Natural Gas	N/A	A boiler or other combustion source with an individual rated gross heat input less than 20 MMBtu/hour	§129.112(c)(4)	Shall install, maintain, and operate the source in accordance with the manufacturer's specifications and with good operating practices as demonstrated through Facility preventative maintenance system and associated recordkeeping.
	Line I Tempering Kiln RTO Burners (2 Units)	2.3	Natural Gas		A thermal oxidizer used primarily for air pollution control	§129.112(c)(8)	Shall install, maintain, and operate the source in accordance with the manufacturer's specifications and with good operating practices as demonstrated through Facility preventative maintenance system and associated recordkeeping.
193P	Die Form Tempering Kiln Burner	4.8	Natural Gas	2.3 tpy	A boiler or other combustion source with an individual rated gross heat input less than 20 MMBtu/hour	§129.112(c)(4)	Shall install, maintain, and operate the source in accordance with the manufacturer's specifications and with good operating practices as demonstrated through Facility preventative maintenance system and associated recordkeeping.
	Die Form Tempering Kiln RTO	2.5	Natural Gas		A thermal oxidizer used primarily for air pollution control	§129.112(c)(8)	Shall install, maintain, and operate the source in accordance with the manufacturer's specifications and with good operating practices as demonstrated through Facility preventative maintenance system and associated recordkeeping.
203P	MiraTEC First Pass Coating Infrared Ovens (2 Units)	4.3	Natural Gas	1.1 tpy	A boiler or other combustion source with an individual rated gross heat input less than 20 MMBtu/hour	§129.112(c)(4)	Shall install, maintain, and operate the source in accordance with the manufacturer's specifications and with good operating practices as demonstrated through Facility preventative maintenance system and associated recordkeeping.
	MiraTEC First Pass Coating HVHA Oven	6.0	Natural Gas	0.5 tpy	N/A - Meets exemption criteria of §129.111(c) because PTE less than 1 tpy NO <sub>x</sub>		
	MiraTEC First Pass Coating HVHA Oven	3.0	Natural Gas	0.2 tpy			
300P	Emergency Generators (7 Units)	< 500 hp	Natural Gas	N/A	Emergency standby engine operating less than 500 hours in a 12-month rolling period	§129.112(c)(10)	Shall install, maintain, and operate the source in accordance with the manufacturer's specifications and with good operating practices as demonstrated through Facility preventative maintenance system and associated recordkeeping.
	Emergency Generator (1 Unit)	< 500 hp	Propane				
	Emergency Diesel Pumps (4 Units)	< 500 hp	Diesel Fuel				

**Table A-2**  
**RACT III Rule VOC Applicability Summary**  
**JELD-WEN, Inc. - Towanda, PA**

Source ID	Source Name	Source Capacity/ Throughput	Fuel/ Throughput Material	VOC PTE	RACT III Applicability		
		MMBTU/hr			Classification	Citation	VOC Limitation/ Requirement
031	Union Iron Works (Boiler 1)	82.4	Natural Gas	0.99 tpy	N/A - Meets exemption criteria of §129.111(c) because PTE less than 1 tpy VOC		
033	B & W Boiler (Boiler 3)	273.2	Natural Gas and Wood	35.3 tpy	Combustion unit subject to §129.111	§129.112(d)	Shall install, maintain, and operate the source in accordance with the manufacturer's specifications and with good operating practices as demonstrated through Facility preventative maintenance system and associated recordkeeping.
099	Small Combustion Units (7 Units)	<10	Natural Gas	0.99 tpy	N/A - Meets exemption criteria of §129.111(c) because PTE less than 1 tpy VOC		
	Small Combustion Units (5 Units)	2.3 to < 10	Natural Gas				
	Small Combustion Units (55 Units)	<2.3	Natural Gas				
	Small Combustion Units (6 Units)	≤0.185	No. 2 Fuel Oil	0.99 tpy			
141P	Line I First Stage Dryers	N/A	Wood Fiber	12.2 tpy	VOC air contamination source with PTE >2.7 ton/yr VOC	§129.114(c)	Case-by-Case RACT determination as demonstrated through the use of an RTO and associated recordkeeping.
	RTO for Line I First Stage Dryer	10.70	Natural Gas	N/A	A thermal oxidizer used primarily for air pollution control	§129.112(c)(8)	Shall install, maintain, and operate the source in accordance with the manufacturer's specifications and with good operating practices as demonstrated through Facility preventative maintenance system and associated recordkeeping.
	Combustion Source for Line I First Stage Dryer	12.0	Natural Gas	0.3 tpy	N/A - Meets exemption criteria of §129.111(c) because PTE less than 1 tpy VOC		

**Table A-2**  
**RACT III Rule VOC Applicability Summary**  
**JELD-WEN, Inc. - Towanda, PA**

Source ID	Source Name	Source Capacity/ Throughput	Fuel/ Throughput Material	VOC PTE	RACT III Applicability		
		MMBTU/hr			Classification	Citation	VOC Limitation/ Requirement
142P	Line II First Stage Dryers	N/A	Wood Fiber	8.8 tpy	VOC air contamination source with PTE >2.7 ton/yr VOC	§129.114(c)	Case-by-Case RACT determination as demonstrated through the use of an RTO and associated recordkeeping.
	Line II Press Cavity Steam Condenser						
	RTO for Line 2 First Stage Dryer	12.32	Natural Gas	N/A	A thermal oxidizer used primarily for air pollution control	§129.112(c)(8)	Shall install, maintain, and operate the source in accordance with the manufacturer's specifications and with good operating practices as demonstrated through Facility preventative maintenance system and associated recordkeeping.
161P	Line I Second Stage Dryers	N/A	Wood Fiber	14 tpy	VOC air contamination source with PTE >2.7 ton/yr VOC	§129.114(c)	Case-by-Case RACT determination as demonstrated through the use of Ducon Centrifugal Scrubbers and associated recordkeeping.
	Line I Second Stage Dryer Combustion Sources (4 Units)	15.0	Natural Gas	0.4 tpy	N/A - Meets exemption criteria of §129.111(c) because PTE less than 1 tpy VOC		
162P	Line II Second Stage Dryers	N/A	Wood Fiber	16.2 tpy	VOC air contamination source with PTE >2.7 ton/yr VOC	§129.114(c)	Case-by-Case RACT determination as demonstrated through the use of Ducon Centrifugal Scrubbers and associated recordkeeping.
	Line II Second Stage Dryer Combustion Sources (4 Units)	18.0	Natural Gas	0.5 tpy	N/A - Meets exemption criteria of §129.111(c) because PTE less than 1 tpy VOC		
171P	Line I Press	N/A	Wood Fiber	49.4 tpy	VOC air contamination source with PTE >2.7 ton/yr VOC	§129.114(c)	Case-by-Case RACT determination as demonstrated through the use of Koch Tray Towers, Venturi Scrubbers, TVOP VOC emissions limitations, and associated recordkeeping.
172P	Line II Press	N/A	Wood Fiber	28.6 tpy	VOC air contamination source with PTE >2.7 ton/yr VOC	§129.114(c)	Case-by-Case RACT determination as demonstrated through the use of Koch Tray Towers, Venturi Scrubbers, and associated recordkeeping.
174P	Line II - Die and Plate Cleaning Area	N/A	Cleaners	<2.7 tpy	VOC air contamination source with PTE <2.7 ton/yr VOC	§129.112(c)(2)	Shall install, maintain, and operate the source in accordance with the manufacturer's specifications and with good operating practices as demonstrated through Facility preventative maintenance system and associated recordkeeping.
184P	Die Form Press	N/A	Wood Fiber	26 tpy	VOC air contamination source with PTE >2.7 ton/yr VOC	§129.114(c)	Case-by-Case RACT determination as demonstrated through the use of Venturi Scrubbers, TVOP VOC emissions limitations, and associated recordkeeping.

**Table A-2**  
**RACT III Rule VOC Applicability Summary**  
**JELD-WEN, Inc. - Towanda, PA**

Source ID	Source Name	Source Capacity/ Throughput	Fuel/ Throughput Material	VOC PTE	RACT III Applicability		
		MMBTU/hr			Classification	Citation	VOC Limitation/ Requirement
187P	Die Form Surface Coating Operation	N/A	Coatings	60.29 tpy	N/A - Meets exemption criteria of §129.111(a) because already subject to §129.52c		
	Die Form Coating HVHA Oven	3.10	Natural Gas	0.99 tpy	N/A - Meets exemption criteria of §129.111(c) because PTE less than 1 tpy VOC		
	Die Form Coating Infrared Oven	1.32	Natural Gas				
	Die Form Coating Infrared Oven	1.15	Natural Gas				
	Die Form Coating HVHA Oven	1.50	Natural Gas				
188P	Coating I Surface Coating Operation	N/A	Coatings	160.4 tpy	N/A - Meets exemption criteria of §129.111(a) because already subject to §129.52c		
	Coating I Infrared Oven	3.65	Natural Gas	0.99 tpy	N/A - Meets exemption criteria of §129.111(c) because PTE less than 1 tpy VOC		
	Coating I Infrared Oven	2.95	Natural Gas				
	Coating I HVHA Oven	4.50	Natural Gas				
	Coating I HVHA Oven	3.50	Natural Gas				
189P	MiraTEC Second Pass Surface Coating Operation	N/A	Coatings	29.2 tpy	N/A - Meets exemption criteria of §129.111(a) because already subject to §129.52c		
	MiraTEC Second Pass Coating Infrared Oven	5.31	Natural Gas	0.98 tpy	N/A - Meets exemption criteria of §129.111(c) because PTE less than 1 tpy VOC		
	MiraTEC Second Pass Coating Infrared Oven	3.15	Natural Gas				
	MiraTEC Second Pass Coating HVHA Ovens (3 Units)	3.125	Natural Gas				

**Table A-2**  
**RACT III Rule VOC Applicability Summary**  
**JELD-WEN, Inc. - Towanda, PA**

Source ID	Source Name	Source Capacity/ Throughput	Fuel/ Throughput Material	VOC PTE	RACT III Applicability		
		MMBTU/hr			Classification	Citation	VOC Limitation/ Requirement
191P	Line I Tempering Hoods	N/A	Tempering Oil	31.44 tpy	VOC air contamination source with PTE >2.7 ton/yr VOC	§129.114(c)	Case-by-Case RACT determination as demonstrated through the use of preventative maintenance requirements, TVOP VOC emissions limitations, and associated recordkeeping.
	Line I Tempering Oil Application Station	N/A	Tempering Oil	1.08 tpy	VOC air contamination source with PTE <2.7 ton/yr VOC	§129.112(c)(2)	Shall install, maintain, and operate the source in accordance with the manufacturer's specifications and with good operating practices as demonstrated through Facility preventative maintenance system and associated recordkeeping.
	Line I Tempering Kiln	12.7	Tempering Oil	0.27 tpy	N/A - Meets exemption criteria of §129.111(c) because PTE less than 1 tpy VOC		
	Line I Tempering Kiln Burners (2 Units)	12.7	Natural Gas	0.96 tpy			
	Line I Tempering Kiln RTO Burners (2 Units)	2.3	Natural Gas	0.98 tpy			
193P	Die Form Tempering Hoods	N/A	Tempering Oil	42.91 tpy	VOC air contamination source with PTE >2.7 ton/yr VOC	§129.114(c)	Case-by-Case RACT determination as demonstrated through the use of an RTO, TVOP VOC emissions limitations, and associated recordkeeping.
	Die Form Tempering Kiln	N/A	Tempering Oil	2.1 tpy	VOC air contamination source with PTE <2.7 ton/yr VOC	§129.112(c)(2)	Shall install, maintain, and operate the source in accordance with the manufacturer's specifications and with good operating practices as demonstrated through Facility preventative maintenance system and associated recordkeeping.
	Die Form Tempering Kiln Burner	4.8	Natural Gas	0.6 tpy	N/A - Meets exemption criteria of §129.111(c) because PTE less than 1 tpy VOC		
	Die Form Tempering Kiln RTO	2.5	Natural Gas	0.3 tpy			
200P	Woodyard	N/A	Wood Chips	11.2 tpy	VOC air contamination source with PTE >2.7 ton/yr VOC	§129.114(c)	Case-by-Case RACT determination as demonstrated through the use of preventative maintenance and associated recordkeeping.
201P	Wood Waste Storage Pile	N/A	Wood Fiber	3.8 tpy	VOC air contamination source with PTE >2.7 ton/yr VOC	§129.114(c)	Case-by-Case RACT determination as demonstrated through the use of preventative maintenance and associated recordkeeping.
202P	Jet-A-Mark Code Date Printers (5+ Units)	N/A	Ink	10.3 tpy (total)	VOC air contamination source with PTE <2.7 ton/yr VOC (per printer)	§129.112(c)(2)	Shall install, maintain, and operate the source in accordance with the manufacturer's specifications and with good operating practices as demonstrated through Facility preventative maintenance system and associated recordkeeping.
	Jet-A-Mark Code Date Printers (5+ Units)	N/A	Solvent				

**Table A-2**  
**RACT III Rule VOC Applicability Summary**  
**JELD-WEN, Inc. - Towanda, PA**

Source ID	Source Name	Source Capacity/ Throughput	Fuel/ Throughput Material	VOC PTE	RACT III Applicability		
		MMBTU/hr			Classification	Citation	VOC Limitation/ Requirement
203P	MiraTEC First Pass Coating Infrared Ovens (2 Units)	4.3	Natural Gas	0.98 tpy	N/A - Meets exemption criteria of §129.111(e) because PTE less than 1 tpy VOC (per unit)		
	MiraTEC First Pass Coating HVHA Oven	6.0	Natural Gas				
	MiraTEC First Pass Coating HVHA Oven	3.0	Natural Gas				
	MiraTEC First Pass Surface Coating Operation	N/A	Coatings	22.0 tpy	N/A - Meets exemption criteria of §129.111(a) because already subject to §129.52c		
204P	Surface Coating Manufacturing Operations	N/A	Coatings	1.9 tpy	VOC air contamination source with PTE <2.7 ton/yr VOC	§129.112(c)(2)	Shall install, maintain, and operate the source in accordance with the manufacturer's specifications and with good operating practices as demonstrated through Facility preventative maintenance system and associated recordkeeping.
300P	Emergency Generator Engines (7 Units)	< 500 hp	Natural Gas	N/A	Emergency standby engine operating less than 500 hours in a 12-month rolling period	§129.112(c)(10)	Shall install, maintain, and operate the source in accordance with the manufacturer's specifications and with good operating practices as demonstrated through Facility preventative maintenance system and associated recordkeeping.
	Emergency Generator Engine (1 Unit)	< 500 hp	Propane				
	Emergency Diesel Pump Engines (4 Units)	< 500 hp	Diesel Fuel				
400P	Storage Tanks	N/A	Various	2.6 tpy	VOC air contamination source with PTE <2.7 ton/yr VOC	§129.112(c)(2)	Shall install, maintain, and operate the source in accordance with the manufacturer's specifications and with good operating practices as demonstrated through Facility preventative maintenance system and associated recordkeeping.
600P	Process Water Treatment Facility & Spray Irrigation Field	730 MG	Process Water	6.8 tpy	VOC air contamination source with PTE >2.7 ton/yr VOC	§129.114(c)	Case-by-Case RACT determination as demonstrated through the use of preventative maintenance and associated recordkeeping.



**Table A-3**  
**RACT III Exemptions - NO<sub>x</sub>**  
**JELD-WEN, Inc. - Towanda, PA**

Source ID	Source Name	Reason for Exemption	RACT III Citation
099	Small Combustion Units (55 Units)	Exempt on the basis of a PTE < 1 tpy for each unit	§129.111(c)
	Small Combustion Units (6 Units)	Exempt on the basis of a PTE < 1 tpy for each unit	§129.111(c)
187P	Die Form Coating HVHA Oven	Exempt on the basis of a PTE < 1 tpy	§129.111(c)
	Die Form Coating Infrared Oven	Exempt on the basis of a PTE < 1 tpy	§129.111(c)
	Die Form Coating Infrared Oven	Exempt on the basis of a PTE < 1 tpy	§129.111(c)
	Die Form Coating HVHA Oven	Exempt on the basis of a PTE < 1 tpy	§129.111(c)
188P	Coating I Infrared Oven	Exempt on the basis of a PTE < 1 tpy	§129.111(c)
	Coating I Infrared Oven	Exempt on the basis of a PTE < 1 tpy	§129.111(c)
189P	MiraTEC Second Pass Coating Infrared Oven	Exempt on the basis of a PTE < 1 tpy	§129.111(c)
	MiraTEC Second Pass Coating HVHA Ovens (3 Units)	Exempt on the basis of a PTE < 1 tpy for each unit	§129.111(c)
203P	MiraTEC First Pass Coating HVHA Oven	Exempt on the basis of a PTE < 1 tpy	§129.111(c)
	MiraTEC First Pass Coating HVHA Oven	Exempt on the basis of a PTE < 1 tpy	§129.111(c)

**Table A-4**  
**RACT III Exemptions - VOC**  
**JELD-WEN, Inc. - Towanda, PA**

Source ID	Source Name	Reason for Exemption	RACT III Citation
031	Union Iron Works (Boiler 1)	Exempt on the basis of a PTE < 1 tpy.	§129.111(c)
099	Small Combustion Units (7 Units)	Exempt on the basis of a PTE < 1 tpy for each unit	§129.111(c)
	Small Combustion Units (5 Units)	Exempt on the basis of a PTE < 1 tpy for each unit	§129.111(c)
	Small Combustion Units (55 Units)	Exempt on the basis of a PTE < 1 tpy for each unit	§129.111(c)
	Small Combustion Units (6 Units)	Exempt on the basis of a PTE < 1 tpy for each unit	§129.111(c)
141P	Combustion Source for Line I First Stage Dryer	Exempt on the basis of a PTE < 1 tpy	§129.111(c)
161P	Line I Second Stage Dryer Combustion Sources (4 Units)	Exempt on the basis of a PTE < 1 tpy for each unit	§129.111(c)
162P	Line II Second Stage Dryer Combustion Sources (4 Units)	Exempt on the basis of a PTE < 1 tpy for each unit	§129.111(c)
187P	Die Form Surface Coaling Operation	Exempt from the RACT III Rule because the source is subject to 25 Pa. Code §129.52(c).	§129.111(a)
	Die Form Coating HVHA Oven	Exempt on the basis of a PTE < 1 tpy	§129.111(c)
	Die Form Coating Infrared Oven	Exempt on the basis of a PTE < 1 tpy	§129.111(c)
	Die Form Coating Infrared Oven	Exempt on the basis of a PTE < 1 tpy	§129.111(c)
	Die Form Coating HVHA Oven	Exempt on the basis of a PTE < 1 tpy	§129.111(c)
188P	Coating I Surface Coating Operation	Exempt from the RACT III Rule because the source is subject to 25 Pa. Code §129.52(c).	§129.111(a)
	Coating I Infrared Oven	Exempt on the basis of a PTE < 1 tpy	§129.111(c)
	Coating I Infrared Oven	Exempt on the basis of a PTE < 1 tpy	§129.111(c)
	Coating I Infrared Oven	Exempt on the basis of a PTE < 1 tpy	§129.111(c)
	Coating I HVHA Oven	Exempt on the basis of a PTE < 1 tpy	§129.111(c)
189P	MiraTEC Second Pass Surface Coating Operation	Exempt from the RACT III Rule because the source is subject to 25 Pa. Code §129.52(c).	§129.111(a)
	MiraTEC Second Pass Coating Infrared Oven	Exempt on the basis of a PTE < 1 tpy	§129.111(c)
	MiraTEC Second Pass Coating Infrared Oven	Exempt on the basis of a PTE < 1 tpy	§129.111(c)
	MiraTEC Second Pass Coating HVHA Ovens (3 Units)	Exempt on the basis of a PTE < 1 tpy for each unit	§129.111(c)
191P	Line I Tempering Kiln	Exempt on the basis of a PTE < 1 tpy	§129.111(c)
	Line I Tempering Kiln Burners (2 Units)	Exempt on the basis of a PTE < 1 tpy for each unit	§129.111(c)
	Line I Tempering Kiln RTO Burners (2 Units)	Exempt on the basis of a PTE < 1 tpy for each unit	§129.111(c)
193P	Die Form Tempering Kiln Burner	Exempt on the basis of a PTE < 1 tpy	§129.111(c)
	Die Form Tempering Kiln RTO	Exempt on the basis of a PTE < 1 tpy	§129.111(c)
203P	MiraTEC First Pass Coating Infrared Ovens (2 Units)	Exempt on the basis of a PTE < 1 tpy for each unit	§129.111(c)
	MiraTEC First Pass Coating HVHA Oven	Exempt on the basis of a PTE < 1 tpy	§129.111(c)
	MiraTEC First Pass Coating HVHA Oven	Exempt on the basis of a PTE < 1 tpy	§129.111(c)
	MiraTEC First Pass Surface Coating Operation	Exempt from the RACT III Rule because the source is subject to 25 Pa. Code §129.52(c).	§129.111(a)

**Table A-5  
RACT III Exemptions - PTE Calculations NO<sub>x</sub>  
JELD-WEN, Inc. - Towanda, PA**

Source ID	Source Name	Capacity (MMBtu/hr)	NO <sub>x</sub> Emissions Factor	Emission Factor Units	PTE (tpy) <sup>(a)</sup>	RACT III Non-Applicability/Exemption Criteria
099	Small Combustion Units (55 Units)	2.3	0.10	lb/MMBtu <sup>(b)</sup>	0.98	Exempt on the basis of a PTE < 1 tpy for each unit
	Small Combustion Units (6 Units)	0.185	0.14	lb/MMBtu <sup>(b)</sup>	0.12	Exempt on the basis of a PTE < 1 tpy for each unit
187P	Die Form Coating HVHA Oven	3.1	0.04	lb/MMBtu <sup>(b)</sup>	0.53	Exempt on the basis of a PTE < 1 tpy
	Die Form Coating Infrared Oven	1.32	0.04	lb/MMBtu <sup>(b)</sup>	0.22	Exempt on the basis of a PTE < 1 tpy
	Die Form Coating Infrared Oven	1.15	0.04	lb/MMBtu <sup>(b)</sup>	0.20	Exempt on the basis of a PTE < 1 tpy
	Die Form Coating HVHA Oven	1.5	0.05	lb/MMBtu <sup>(b)</sup>	0.32	Exempt on the basis of a PTE < 1 tpy
188P	Coating I Infrared Oven	3.65	0.04	lb/MMBtu <sup>(b)</sup>	0.62	Exempt on the basis of a PTE < 1 tpy
	Line I Tempering Kiln	2.95	0.04	lb/MMBtu <sup>(b)</sup>	0.50	Exempt on the basis of a PTE < 1 tpy
189P	MiraTEC Second Pass Coating Infrared Oven	3.15	0.04	lb/MMBtu <sup>(b)</sup>	0.54	Exempt on the basis of a PTE < 1 tpy
	MiraTEC Second Pass Coating HVHA Ovens (3 Units)	3.13	0.05	lb/MMBtu <sup>(b)</sup>	0.67	Exempt on the basis of a PTE < 1 tpy for each unit
203P	MiraTEC First Pass Coating HVHA Oven	6.0	1.20E-02	lb/MMBtu <sup>(b)</sup>	0.32	Exempt on the basis of a PTE < 1 tpy
	MiraTEC First Pass Coating HVHA Oven	3.0	1.20E-02	lb/MMBtu <sup>(b)</sup>	0.16	Exempt on the basis of a PTE < 1 tpy

<sup>(a)</sup> Calculations assume the following:

8,760	hr/yr
2,000	lb/ton
1,020	MMBtu/MMscf

<sup>(b)</sup> Potential NO<sub>x</sub> emissions estimated by JELD-WEN and provided to PADEP through the RACT II Proposal submitted in October 2016.

**Table A-6**  
**RACT III Exemptions - PTE Calculations VOC**  
**JELD-WEN, Inc. - Towanda, PA**

Source ID	Source Name	Capacity (MMBtu/hr)	VOC Emissions Factor	Emission Factor Units	PTE (tpy) <sup>(a)</sup>	RACT III Non-Applicability/Exemption Criteria
031	Union Iron Works (Boiler 1)	82.4	2.03E-03	lb/MMBtu <sup>(b)</sup>	0.73	Exempt on the basis of a PTE < 1 tpy.
099	Small Combustion Units (7 Units)	10	5.34E-03	lb/MMBtu <sup>(b)</sup>	0.23	Exempt on the basis of a PTE < 1 tpy for each unit
	Small Combustion Units (5 Units)	10	5.34E-03	lb/MMBtu <sup>(b)</sup>	0.23	Exempt on the basis of a PTE < 1 tpy for each unit
	Small Combustion Units (55 Units)	2.3	5.34E-03	lb/MMBtu <sup>(b)</sup>	0.05	Exempt on the basis of a PTE < 1 tpy for each unit
	Small Combustion Units (6 Units)	0.185	1.43E-03	lb/MMBtu <sup>(b)</sup>	1.16E-03	Exempt on the basis of a PTE < 1 tpy for each unit
141P	Combustion Source for Line I First Stage Dryer	12.0	5.5	lb/MMscf <sup>(c)</sup>	0.28	Exempt on the basis of a PTE < 1 tpy
161P	Line I Second Stage Dryer Combustion Sources (4 Units)	15	5.34E-03	lb/MMBtu <sup>(b)</sup>	0.35	Exempt on the basis of a PTE < 1 tpy
162P	Line II Second Stage Dryer Combustion Sources (4 Units)	18	5.34E-03	lb/MMBtu <sup>(b)</sup>	0.42	Exempt on the basis of a PTE < 1 tpy
187P	Die Form Coating HVHA Oven	3.2	5.34E-03	lb/MMBtu <sup>(b)</sup>	0.07	Exempt on the basis of a PTE < 1 tpy
	Die Form Coating Infrared Oven	1.32	5.34E-03	lb/MMBtu <sup>(b)</sup>	0.03	Exempt on the basis of a PTE < 1 tpy
	Die Form Coating Infrared Oven	1.15	5.34E-03	lb/MMBtu <sup>(b)</sup>	0.03	Exempt on the basis of a PTE < 1 tpy
	Die Form Coating HVHA Oven	1.5	5.34E-03	lb/MMBtu <sup>(b)</sup>	0.04	Exempt on the basis of a PTE < 1 tpy
188P	Coating I Infrared Oven	3.65	5.34E-03	lb/MMBtu <sup>(b)</sup>	0.09	Exempt on the basis of a PTE < 1 tpy
	Coating I Infrared Oven	2.95	5.34E-03	lb/MMBtu <sup>(b)</sup>	0.07	Exempt on the basis of a PTE < 1 tpy
	Coating I Infrared Oven	4.5	5.34E-03	lb/MMBtu <sup>(b)</sup>	0.11	Exempt on the basis of a PTE < 1 tpy
	Coating I HVHA Oven	3.5	5.34E-03	lb/MMBtu <sup>(b)</sup>	0.08	Exempt on the basis of a PTE < 1 tpy
189P	MiraTEC Second Pass Coating Infrared Oven	5.31	5.34E-03	lb/MMBtu <sup>(b)</sup>	0.12	Exempt on the basis of a PTE < 1 tpy
	MiraTEC Second Pass Coating Infrared Oven	3.15	5.34E-03	lb/MMBtu <sup>(b)</sup>	0.07	Exempt on the basis of a PTE < 1 tpy
	MiraTEC Second Pass Coating HVHA Ovens (3 Units)	3.125	5.34E-03	lb/MMBtu <sup>(b)</sup>	0.07	Exempt on the basis of a PTE < 1 tpy
191P	Line I Tempering Kiln	12.65	5.5	lb/MMscf <sup>(c)</sup>	0.30	Exempt on the basis of a PTE < 1 tpy
	Line I Tempering Kiln Burners (2 Units)	12.7	5.34E-03	lb/MMBtu <sup>(b)</sup>	0.30	Exempt on the basis of a PTE < 1 tpy for each unit
	Line I Tempering Kiln RTO Burners (2 Units)	2.3	5.34E-03	lb/MMBtu <sup>(b)</sup>	0.05	Exempt on the basis of a PTE < 1 tpy
193P	Die Form Tempering Kiln Burner	4.8	5.34E-03	lb/MMBtu <sup>(b)</sup>	0.11	Exempt on the basis of a PTE < 1 tpy
	Die Form Tempering Kiln RTO	2.5	5.34E-03	lb/MMBtu <sup>(b)</sup>	0.06	Exempt on the basis of a PTE < 1 tpy
203P	MiraTEC First Pass Coating Infrared Ovens (2 Units)	4.3	5.34E-03	lb/MMBtu <sup>(b)</sup>	0.10	Exempt on the basis of a PTE < 1 tpy for each unit
	MiraTEC First Pass Coating HVHA Oven	6.0	5.34E-03	lb/MMBtu <sup>(b)</sup>	0.14	Exempt on the basis of a PTE < 1 tpy
	MiraTEC First Pass Coating HVHA Oven	3.0	5.34E-03	lb/MMBtu <sup>(b)</sup>	0.07	Exempt on the basis of a PTE < 1 tpy

<sup>(a)</sup> Calculations assume the following:

8,760	hr/yr - Heater
2,000	lb/ton
1,020	MMBtu/MMscf

<sup>(b)</sup> Potential VOC emissions estimated by JELD-WEN and provided to PADEP through the RACT II Proposal submitted in October 2016.

<sup>(c)</sup> Emissions factor from AP-42 Tables 1.4-1 for small, uncontrolled, natural gas-fired combustion units.

**Table A-7**  
**RACT III Source Inventory**  
**JELD-WEN, Inc. - Towanda, PA**

Source ID	Source Name	Source Description	Make	Model	Location
031	Union Iron Works (Boiler 1)	Natural gas fired boiler with a rating of 82.4 MMBtu/hr	Union Iron Works	VO	Towanda Facility
033	B & W Boiler (Boiler 3)	Wood and natural gas fired boiler with a rating of 273.2 MMBtu/hr	B & W	TowerPack	Towanda Facility
099	Small Combustion Units (7 Units)	Small natural gas fired combustion units less than 10 MMBtu/hr	Various	Various	Towanda Facility
	Small Combustion Units (5 Units)	Small natural gas fired combustion units less than 10 MMBtu/hr and greater than 2.3 MMBtu/hr	Various	Various	Towanda Facility
	Small Combustion Units (55 Units)	Small natural gas fired combustion units less than 2.3 MMBtu/hr	Various	Various	Towanda Facility
	Small Combustion Units (6 Units)	Small No. 2 fuel oil fired combustion units less than 0.185 MMBtu/hr	Various	Various	Towanda Facility
141P	Line I First Stage Dryers	Stage dryers	Edward Renneberg Company	Unknown	Towanda Facility
	Combustion Source for Line I First Stage Dryer	Natural gas fired burner with a rating of 12 MMBtu/hr	North American	6000H	Towanda Facility
	RTO for Line I First Stage Dryer	Regenerative thermal oxidizer	Durr	RL 60-V3-95	Towanda Facility
142P	Line II First Stage Dryers	Stage dryers	Edward Renneberg Company	Unknown	Towanda Facility
	Line II Press Cavity Steam Condenser	Condenser	Unknown	Unknown	Towanda Facility
	RTO for Line 2 First Stage Dryer	Regenerative thermal oxidizer	Durr	RL 80-V3-95	Towanda Facility
161P	Line I Second Stage Dryers	Stage dryers	Edward Renneberg Company	Unknown	Towanda Facility
	Line I Second Stage Dryer Combustion Sources (4 Units)	Natural gas fired burner with a rating of 15 MMBtu/hr	Maxon	EB4	Towanda Facility
162P	Line II Second Stage Dryers	Stage dryers	Edward Renneberg Company	Unknown	Towanda Facility
	Line II Second Stage Dryer Combustion Sources (4 Units)	Natural gas fired combustion source with a rating of 18 MMBtu/hr	North American	9000L	Towanda Facility

**Table A-7**  
**RACT III Source Inventory**  
**JELD-WEN, Inc. - Towanda, PA**

Source ID	Source Name	Source Description	Make	Model	Location
171P	Line I Press	Line Press	Motala	Unknown	Towanda Facility
172P	Line II Press	Line Press	Washington Iron Works	Unknown	Towanda Facility
174P	Line II - Die and Plate Cleaning Area	Die and plate cleaning areas	N/A	N/A	Towanda Facility
184P	Die Form Press	Motala Die form hardboard press	Washington Iron Works	Unknown	Towanda Facility
187P	Die Form Surface Coating Operation	Surface coating spray booths	In-house design	N/A	Towanda Facility
	Die Form Coating HVHA Oven	3.1 MMBtu/hr infrared oven	Forrest Technologies	Unknown	Towanda Facility
	Die Form Coating Infrared Oven	1.32 MMBtu/hr infrared oven	TEC	Unknown	Towanda Facility
	Die Form Coating Infrared Oven	1.15 MMBtu/hr infrared oven	TEC	Unknown	Towanda Facility
	Die Form Coating HVHA Oven	1.5 MMBtu/hr HVHA oven	TEC	Unknown	Towanda Facility
188P	Coating I Surface Coating Operation	Spray booths	In-house design	N/A	Towanda Facility
	Coating I Infrared Oven	3.65 MMBtu/hr infrared oven	TEC	Unknown	Towanda Facility
	Coating I Infrared Oven	2.95 MMBtu/hr infrared oven	TEC	Unknown	Towanda Facility
	Coating I HVHA Oven	4.5 MMBtu/hr HVHA oven	TEC	Unknown	Towanda Facility
	Coating I HVHA Oven	3.5 MMBtu/hr HVHA oven	TEC	Unknown	Towanda Facility
189P	MiraTEC Second Pass Surface Coating Operation	Spray booths and coaters	In-house design	N/A	Towanda Facility
	MiraTEC Second Pass Coating Infrared Oven	5.313 MMBtu/hr infrared oven	TEC	Unknown	Towanda Facility
	MiraTEC Second Pass Coating Infrared Oven	3.15 MMBtu/hr infrared oven	TEC	Unknown	Towanda Facility
	MiraTEC Second Pass Coating HVHA Ovens (3 Units)	3.125 MMBtu/hr HVHA oven	TEC	Unknown	Towanda Facility

**Table A-7**  
**RACT III Source Inventory**  
**JELD-WEN, Inc. - Towanda, PA**

Source ID	Source Name	Source Description	Make	Model	Location
191P	Line I Tempering Hoods	Flume hood	In-house design	N/A	Towanda Facility
	Line I Tempering Oil Application Station	Tempering oil application station	In-house design	Unknown	Towanda Facility
	Line I Tempering Kiln	Drying Kiln	Ross Air System	Unknown	Towanda Facility
	Line I Tempering Kiln Burners (2 Units)	Natural gas fired burner with a rating of 12.65 MMBtu/hr	Ross Air System	Unknown	Towanda Facility
	Line I Tempering Kiln RTO Burners (2 Units)	Regenerative thermal oxidizer with a maximum heat rating of 2.3 MMBtu/hr	Reeco	VF-C	Towanda Facility
193P	Die Form Tempering Hoods	Flume hood	In-house design	N/A	Towanda Facility
	Die Form Tempering Kiln	Drying Kiln	AER	Unknown	Towanda Facility
	Die Form Tempering Kiln Burner	4.8 MMBtu/hr drying kiln	AER	Unknown	Towanda Facility
	Die Form Tempering Kiln RTO	Regenerative thermal oxidizer with a maximum heat rating of 2.5 MMBtu/hr	Durr	RL-15-V2-95	Towanda Facility
200P	Woodyard	Log/wood chip storage area	N/A	N/A	Towanda Facility
201P	Wood Waste Storage Pile	Wood waste fiber storage pile	N/A	N/A	Towanda Facility
202P	Jet-A-Mark Code Date Printers (5+ Units)	Jet-A-Mark code printers	Jeta-Mark	Unknown	Towanda Facility
203P	MiraTEC First Pass Coating Infrared Ovens (2 Units)	4.263 MMBtu/hr infrared oven	TEC	Unknown	Towanda Facility
	MiraTEC First Pass Coating HVHA Oven	3.0 MMBtu/hr HVHA oven	TEC	Unknown	Towanda Facility
	MiraTEC First Pass Coating HVHA Oven	6.0 MMBtu/hr HVHA oven	TEC	Unknown	Towanda Facility
	MiraTEC First Pass Surface Coating Operation	Spray booth and coater	In-house design	N/A	Towanda Facility
204P	Surface Coating Manufacturing Operations	Surface coating manufacturing operations	Various	Various	Towanda Facility
300P	Emergency Generators (7 Units)	<500 HP natural gas emergency generators	Various	Various	Towanda Facility
	Emergency Generator (1 Unit)	<500 HP propane emergency generators	Generac	005523-1	Towanda Facility
	Emergency Diesel Pumps (4 Units)	<500 HP diesel fuel emergency pump	Various	Various	Towanda Facility
400P	Storage Tanks	Storage tank greater than 2,000 gallons	Various	Various	Towanda Facility
600P	Process Water Treatment Facility & Spray Irrigation Field	Water treatment plant	Various	Various	Towanda Facility

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**JELD-WEN, Inc. - Towanda, PA**

Source ID	Source Description	Pollutant	Control Technology	Cost per ton of Pollutant Removed	Total Capital Investment (2014\$)	Control Efficiency	Summary of Economic Infeasibility
141P	Line 1 Refiners And 1st Stage Dryers	VOC	Additional RTO	\$81,356	\$2,605,879	95%	The cost effectiveness of the additional RTO exceeds \$81,000 per ton VOCs controlled for Line I First Stage Dryers. The cost effectiveness far exceeds the RACT II criteria and the RTO controls can be eliminated as not cost-effective. The RCO then becomes the top-ranked control option.
			RCO	\$166,366	\$1,405,378	90%	The cost effectiveness of the RCO exceeds \$166,000 per Ton VOCs controlled for Line I First Stage Dryers. The cost effectiveness also exceeds the RACT II criteria and the RCO controls can be eliminated as not cost-effective. Then no additional controls become the top-ranked control option for Line I First Stage Dryers.
142P	Line 2 Refiners And 1st Stage Dryers	VOC	Additional RTO	\$147,655	\$3,392,534	95%	The cost effectiveness of the additional RTO exceeds \$147,000 per ton VOCs controlled for Line II First Stage Dryers. The cost effectiveness far exceeds the RACT II criteria and the RTO controls can be eliminated as not cost-effective. The RCO then becomes the top-ranked control option.
			RCO	\$293,191	\$1,676,259	90%	The cost effectiveness of the RCO exceeds \$293,000 per Ton VOCs controlled for Line 2 First Stage Dryers. The cost effectiveness also exceeds the RACT II criteria and the RCO controls can be eliminated as not cost-effective. Then no additional controls become the top-ranked control option for Line 2 First Stage Dryers.
161P	Line I Second Stage Dryers	VOC	RTO	\$39,691	\$3,770,207	95%	The cost effectiveness of the RTO exceeds \$39,000 per ton VOCs controlled for Line I Dryers. Then the cost effectiveness far exceeds the RACT II criteria and the RTO controls can be eliminated as not cost-effective. The RCO then becomes the top-ranked control option.
			RCO	\$35,099	\$3,770,207	90%	The cost effectiveness of the RCO exceeds \$32,000 per ton VOCs controlled for Line I Dryers. Then the cost effectiveness far exceeds the RACT II criteria and the RCO controls can be eliminated as not cost-effective. The Biofilters then becomes the top-ranked control option.
			Biofilter	\$30,279	\$4,562,661	86%	The cost effectiveness of the Line I Biofilter exceeds \$30,000 per ton VOCs controlled. Then the cost effectiveness also far exceeds the RACT II criteria and the Biofilter controls can be eliminated as not cost-effective. The existing Ducan Centrifugal Scrubbers then becomes the top-ranked control option.
162P	Line II Second Stage Dryers	VOC	RTO	\$37,331	\$4,909,212	95%	The cost effectiveness of the RTO exceeds \$37,000 per ton VOCs controlled for Line II Dryers. Then the cost effectiveness far exceeds the RACT II criteria and the RTO controls can be eliminated as not cost-effective. The RCO then becomes the top-ranked control option.
			RCO	\$32,651	\$4,909,212	90%	The cost effectiveness of the RCO exceeds \$32,000 per ton VOCs controlled for Line II Dryers. Then the cost effectiveness far exceeds the RACT II criteria and the RCO controls can be eliminated as not cost-effective. The Biofilters then becomes the top-ranked control option.
			Biofilter	\$23,428	\$4,975,518	86%	The cost effectiveness of the Line II Biofilter exceeds \$23,000 per ton for the Line II Dryers. Then the cost effectiveness also far exceeds the RACT II criteria and the Biofilter controls can be eliminated as not cost-effective. The existing Ducan Centrifugal Scrubbers then becomes the top-ranked control option.



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Source ID	Source Description	Pollutant	Control Technology	Cost per ton of Pollutant Removed	Total Capital Investment (2014\$)	Control Efficiency	Summary of Economic Infeasibility
171P	Line 1 Press	VOC	RTO	\$22,045	\$3,440,237	95%	The cost effectiveness of the RTO is over \$22,000 per ton VOCs controlled at Line 1. Then the cost effectiveness exceeds the RACT II criteria and the RTO controls can be eliminated as not cost-effective. The RCO then becomes the top-ranked control option.
			RCO	\$43,606	\$1,691,503	90%	The cost effectiveness of the RCO is over \$43,000 per ton VOCs controlled at Line 1. Then the cost effectiveness also exceeds the RACT II criteria and the RCO controls can be eliminated as not cost-effective. The Biofilter becomes the next top-ranked option.
			Biofilter	\$21,918	\$4,148,823	86%	The cost effectiveness of the Biofilter is over \$21,000 at Line 1. Then the cost effectiveness also exceeds the RACT II criteria and the Biofilter controls can be eliminated as not cost-effective. Then No Additional Controls becomes the top ranked control option for Line 1 Press.
172P	Line 2 Press	VOC	RTO	\$46,227	\$3,441,340	95%	The cost effectiveness of the RTO is over \$46,000 per ton VOCs controlled at Line 2. Then the cost effectiveness exceeds the RACT II criteria and the RTO controls can be eliminated as not cost-effective. The RCO then becomes the top-ranked control option.
			RCO	\$91,711	\$1,691,880	90%	The cost effectiveness of the RCO is over \$91,000 per ton VOCs controlled at Line 2. Then the cost effectiveness also exceeds the RACT II criteria and the RCO controls can be eliminated as not cost-effective. The Biofilter becomes the next top-ranked option.
			Biofilter	\$44,721	\$4,057,317	86%	The cost effectiveness of the Biofilter is over \$44,000 at Line 1. Then the cost effectiveness also exceeds the RACT II criteria and the Biofilter controls can be eliminated as not cost-effective. Then No Additional Controls becomes the top ranked control option for Line 2 Press.
184P	Die Form Press	VOC	RTO	\$21,330	\$1,753,525	95%	The cost effectiveness of the RTO is over \$21,000 at Die Form. Then the cost effectiveness exceeds the RACT II criteria and the RTO controls can be eliminated as not cost-effective. The RCO then becomes the top-ranked control option.
			RCO	\$39,324	\$1,052,818	90%	The cost effectiveness of the RCO is over \$39,000 at Die Form. Then the cost effectiveness also exceeds the RACT II criteria and the RCO controls can be eliminated as not cost-effective. The Biofilter becomes the next top-ranked option.
			Biofilter	\$44,851	\$4,194,479	86%	The cost effectiveness of the Biofilter is over \$44,000 per ton VOCs controlled at Die Form. Then the cost effectiveness also exceeds the RACT II criteria and the Biofilter controls can be eliminated as not cost-effective. Then no Additional Controls becomes the top ranked control option for Die Form Press.
191P	Line I Tempering Hoods	VOC	RTO	\$59,874	\$3,883,833	95%	The cost effectiveness of the RTO exceeds \$59,000 per ton VOCs controlled for both Line I. Then the cost effectiveness far exceeds the RACT II criteria and the RTO controls can be eliminated as not cost-effective. The RCO then becomes the top-ranked control option.
			RCO	\$53,304	\$3,883,833	90%	The cost effectiveness of the RCO exceeds \$53,000 per ton VOCs controlled for both Line I. Then the cost effectiveness also far exceeds the RACT II criteria and the RCO controls can be eliminated as not cost-effective. The Biofilter then becomes the top-ranked control option for Line I.
			Biofilter	\$52,049	\$4,562,661	70%	The cost effectiveness of the Biofilter exceeds \$52,000 per ton VOCs controlled for the Line I Tempering Hoods. Then the cost effectiveness also far exceeds the RACT II criteria and the Biofilter controls can be eliminated as not cost-effective. Then no Controls becomes the top-ranked control option for Line I.

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Source ID	Source Description	Pollutant	Control Technology	Cost per ton of Pollutant Removed	Total Capital Investment (2014\$)	Control Efficiency	Summary of Economic Infeasibility
193P	Die Form Tempering Hoods	VOC	RTO	\$221,185	\$3,995,632	95%	The cost effectiveness of the RTO exceeds \$220,000 per ton VOCs controlled for Die Form Tempering Hoods. Then the cost effectiveness far exceeds the RACT II criteria and the RTO controls can be eliminated as not cost-effective. The RCO then becomes the top-ranked control option.
			RCO	\$196,819		90%	The cost effectiveness of the RCO exceeds \$190,000 per ton VOCs controlled for Die Form Tempering Hoods. Then the cost effectiveness also far exceeds the RACT II criteria and the RCO controls can be eliminated as not cost-effective. For Die Form, no controls becomes the top-ranked control option.
200P	Woodyard	VOC	Enclosure RTO	\$118,789	\$680,130 (Cost of enclosure)	95%	The cost effectiveness of just the Silo Enclosures assuming 100% of VOCs are captured exceeds \$100,000 per ton VOCs captured. Adding the annual cost of any control device would only increase the cost per ton VOCs controlled. Then the cost effectiveness far exceeds the RACT II criteria and the Silo Enclosures and any control device can be eliminated as not cost-effective. Then No Enclosures or Controls becomes the top-ranked control option.
			Enclosure RCO	\$124,670		90%	
			Enclosure and Process Incineration	\$124,670		90%	
			Silo Enclosure	\$112,285		100% (Captured)	
201P	Wood Waste Storage Pile	VOC	Flare and Remove Fiber Pile	\$169,485	\$138,503	99%	The cost effectiveness of the Flare System exceeds \$160,000 per ton VOCs controlled. Then the cost effectiveness far exceeds the RACT II criteria and the Flare System (and any other more costly control device) can be eliminated as not cost-effective. The Removal of the Fiber Pile then becomes the top-ranked control option.
600P	Process Water Treatment Facility & Spray Irrigation Field	VOC	Enclosure RTO	\$12,959	\$266,245 (Cost of enclosure)	95%	The cost effectiveness of just the enclosures assuming 100% of VOCs are captured is \$12,432 per ton VOCs captured. Adding the annual cost of any control device would only increase the cost per ton VOCs controlled. Then the cost effectiveness exceeds the RACT II criteria and the Enclosures and any control device can be eliminated as not cost-effective. Then no enclosures or controls becomes the top-ranked control option.
			Enclosure RCO	\$13,907		90%	
			Enclosure Biofilter	\$13,907		90%	
			Enclosure at Primary Clarifier	\$12,432		65% (Captured)	