DISPLAY THIS CARD ON PRINCIPAL FRONTAGE OF WORK



CITY OF PORTLAND BUILDING PERMIT



This is to certify that **ROBERT RHEIRS PECK**

Job ID: 2011-04-752-HVAC

Located At 22 WILDWOOD UNIT 22

CBL: 411 - - A - 001 - 022 - - - - -

has permission to Install Viessman Vitodens 100-91 MBH

provided that the person or persons, firm or corporation accepting this permit shall comply with all of the provisions of the Statues of Maine and of the Ordinances of the City of Portland regulating the construction, maintenance and use of the buildings and structures, and of the application on file in the department.

Notification of inspection and written permission procured before this building or part thereof is lathed or otherwise closed-in. 48 HOUR NOTICE IS REQUIRED. A final inspection must be completed by owner before this building or part thereof is occupied. If a certificate of occupancy is required, it must be

Fire Prevention Officer

Code Enforcement Officer / Plan Reviewer

THIS CARD MUST BE POSTED ON THE STREET SIDE OF THE PROPERTY. PENALTY FOR REMOVING THIS CAR



To the INSPECTOR OF BUILDINGS, PORTLAND, ME.

Bldg .:

The undersigned hereby applies for a permit to install the following heating, cooking or power equipment in accordance with the Laws of Maine, the Building Code of the City of Portland, and the following specifications:

Location / CBL _ 4/1 A 00 1622 /	Use of Building Date
Name and address of owner of appliance <u>MICHOLAS / ELAIN</u> 22.WILDWOOD CIRCLE PORTLAND,	E NADZO
Installer's name and address GERRY'S HEATING, INC. 179 Equot Rd	Telephone
Raymond, Me 04071 207 655 2089	
Location of appliance:	Type of Chimney:
A Basement D Floor	Masonry Linea
C Attic C Roof	Factory built
Type of Fuel:	Metal
Gas LP Oil OSolid	Factory Built U.L. Listing #
Appliance Name: VIESSMAN VITODENS 100-91 MBH U.L. Approved X Yes D No	Type 7424-119 VIEW VIL# ?
Will appliance be installed in accordance with the manufacture's installation instructions? X Yes	Type of Fuel Tank Gas LPG APR 2011 Instantions Size of Tank
IF NO Explain:	Size of Tank
The Type of License of Installer:	Number of Tanks
Master Plumber #	
Solid Fuel #	Distance from Tank to Center of Flame 20' MIN feet.
Dil # MS10008134 1 TOLOILSAND)	RANK A RANK AND
Gas # PNT 479	Cost of Work: \$ 8000.00 1000.00 - 30.00 # 1000.00 - 70.00
Other	Permit Fee: \$ 100.00 100.00
<u>Approved</u>	Approved with Conditions
Fire:	See attached letter or requirement
Ele.:	

bidg	H	0		Inspector's Signature	Date Approved
Signature of Installer	. Jerry	1 due	itt		
	White - Inspection	Yellow - File	Pink - Applicant	's Gold - Assessor's Copy	

BUILDING PERMIT INSPECTION PROCEDURES Please call 874-8703 or 874-8693 (ONLY) or email: buildinginspections@portlandmaine.gov

With the issuance of this permit, the owner, builder or their designee is required to provide adequate notice to the city of Portland Inspections Services for the following inspections. Appointments must be requested 48 to 72 hours in advance of the required inspection. The inspection date will need to be confirmed by this office.

- Please read the conditions of approval that is attached to this permit!! Contact this office if you have any questions.
- Permits expire in 6 months. If the project is not started or ceases for 6 months.
- If the inspection requirements are not followed as stated below additional fees may be incurred due to the issuance of a "Stop Work Order" and subsequent release to continue.

The project cannot move to the next phase prior to the required inspection and approval to continue, REGARDLESS OF THE NOTICE OF CIRCUMSTANCES.

IF THE PERMIT REQUIRES A CERTIFICATE OF OCCUPANCY, IT MUST BE PAID FOR AND ISSUED TO THE OWNER OR DESIGNEE BEFORE THE SPACE MAY BE OCCU0PIED.





Strengthening a Remarkable City, Building a Community for Life . www.portlandmaine.gov

Director of Planning and Urban Development Penny St. Louis

Job ID: <u>2011-04-752-HVAC</u>

Located At: <u>22 WILDWOOD</u> CBL: <u>411 - A - 001 - 022 - - -</u> <u>UNIT 22</u> <u>-</u>

Conditions of Approval:

Building

The installation must comply with the State of Maine gas regulations.

City of Portland, Maine - Building or Use Permit Application

389 Congress Street, 04101 Tel: (207) 874-8703, FAX: (207) 8716

Job No:	Date Applied:		CBL:		1	
2011-04-752-HVAC	4/7/2011		411 A - 001 - 02	2		
Location of Construction: 22 WILDWOOD CIRCLE UNIT 22	Owner Name: NICHOLAS & ELAINE	NADZO	Owner Address: 22 WILDWOOD C PORTLAND, ME	CIR		Phone:
Business Name:	Contractor Name: Gerry's Heating Inc, Ger Inc	ry's Heating	Contractor Addr 179 Egypt RD R.	ress: AYMOND MAINE (94071	Phone: (207) 655-2089
Lessee/Buyer's Name:	Phone:		Permit Type: HVAC - HVAC			Zone: R-5 PRUD
Past Use: Entire site is 24 residential condos in nine buildings	Proposed Use: SAME: 24 residentia in nine buildings of y		Cost of Work: \$8000.00 Fire Dept:			CEO District:
	is one condo – To rej boiler	-	Signature:	Approved Denied N/A	date A	Inspection: Use Group: Type: Signature:
Proposed Project Description: 22 Wildwood Circle: replacement b			Pedestrian Activ	vities District (P.A.	.D.)	
Permit Taken By: Lannie				Zoning Appr	oval	
 This permit application de Applicant(s) from meeting Federal Rules. Building Permits do not in septic or electrial work. Building permits are void within six (6) months of the False informatin may inver- permit and stop all work. 	g applicable State and nclude plumbing, if work is not started he date of issuance.	Shoreland Wetlands Flood Zo Subdivisi Site Plan	ne	Zoning Appeal Variance Miscellaneous Conditional Us Interpretation Approved Denied	Not in Di Does not Requires Approved	

I hereby certify that I am the owner of record of the named property, or that the proposed work is authorized by the owner of record and that I have been authorized by the owner to make this application as his authorized agent and I agree to conform to all applicable laws of this jurisdiction. In addition, if a permit for work described in the application is issued, I certify that the code official's authorized representative shall have the authority to enter all areas covered by such permit at any reasonable hour to enforce the provision of the code(s) applicable to such permit.

SIGNATURE OF APPLICANT	ADDRESS	DATE	PHONE

4/7/1

Job Summary Report Job ID: 2011-04-752-HVAC

Allens WALLE?

Report generated on Apr 7, 2011 8:29:02 AM

Fee Code Description	Charge Amount	Permit Charge Adjustment	Net Charge Amount	Payment Date	Receipt Number	Payment Amount	Payment Adjustment Amount	Net Payment Amount	Outstandin Balance
			5710-00	Job	Charges				
	Nichol	AS ELLE	NADZO						
	() 0	- \ CLA	V a	Ferry's Heating	a Inc - Gerr	y's Heating Inc (Gerry's Heating ME	CHANICAL CONTR	ACTOR
Related Parties	:			OBERT R PEC	CK		Pro	perty Owner	
Estimated Value	e:	8,000	S	quare Foota	ge:				
Job Application	Date:		P	ublic Buildin	g Flag: N	1	Tenant	Number:	
Building Job Sta	atus Code:	Initiate Plan Re	view Pi	in Value:	1	.070	Tenant	Name:	
Job Type:		HVAC	JC	ob Description	on: 2	2 Wildwood Circ	le Job Yea	r: 2	011

Location Details Alternate Id Parcel Number Census Tract GIS X GIS Y GIS Z GIS Reference Longitude Latitude P10395 411 A 001 022 М -70.268976 43.693 Location Type Subdivision Code Subdivision Sub Code Related Persons Address(es) 1 22 WILDWOOD CIRCLE UNIT 22 District Location Use Code Variance **Use Zone Code** Fire Zone Inside Outside **General Location Inspection Area** Jurisdiction Code Code Code Code Code Code Code DISTRICT 5 RESIDENTIAL TOM NORTH DEERING APPLICABLE CONDOS Structure Details Structure: Residential Condo **Occupancy Type Code:** Structure Type Code Structure Status Type Square Footage Estimated Value Address 0 22 WILDWOOD CIRCLE UNIT 22 Single Family Longitude Latitude GISX GISY GISZ GIS Reference User Defined Property Value

Permit #: 20112516

Permit Data Unrie 24 resident it Condosin 9

Job Summary Report Job ID: 2011-04-752-HVAC

Report generated on Apr 7, 2011 8:29:02 AM Page 2 Location Id Structure Description Permit Status **Permit Description** Issue Date Reissue Date Expiration Date Initialized Install Viessman Vitodens 100-91 MBH 23984 Residential Condo Inspection Details Inspection Id Inspection Type Inspection Result Status Inspection Status Date Scheduled Start Timestamp Result Status Date Final Inspection Flag **Fees Details** Permit Charge Permit Charge Adj Receipt Payment Adjustment Payment Adj Fee Code Charge Payment Payment Adjustment Remark Date Amount Amount Description Amount Number Comment \$100.00 Job Valuation Fees

January, 2010



Venting of Residential Viessmann Gas-Fired Condensing Heating Boilers

At present, there are industry discussions in regards to venting of gas-fired condensing heating boilers. The following represents the opinion and position of Viessmann Manufacturing in regards to venting Viessmann gas-fired condensing heating boilers, series Vitodens 200 and Vitodens 100.

Since the mid 80's, we manufacture and sell gas-fired condensing heating boilers; now sold in more than 30 countries, including North America. In almost all countries, PPS (polypropylene) is mostly used in coaxial vent-type applications or stainless steel for single wall venting systems. PPS is suitable for a steady flue gas temperature of 250° F (121° C) and for short-term exposure up to 280° F (138° C). Stainless steel vent pipe is suitable for 550° F (288° C); typically, an SA240 316 L material is used or the higher grade in North America AL29-4C.

Due to the fact that gas-fired condensing boilers are being vented, not only the temperature of the flue gas becomes an important factor but also, in combination with the extreme high moisture content, the associated acidity (pH level) of the flue gas condensate and the extreme temperature exposure to outdoor conditions need to be considered when selecting materials.

PPS, as well as stainless steel venting systems, have successfully been in use for many years and carry independent certifications for venting these types of heating boilers properly.

CPVC material is certified for 90° C (194° F) and PVC is certified for 65° C (149° F) according to ULC-S636 Standard for Type BH Gas Venting Systems. The Viessmann gas-fired condensing heating boiler Vitodens 200 and 100 series are approved for use with listed CPVC material.

IPEX (the manufacturer of CPVC venting systems) informed that this material is now readily available. Should there be supply issues, please contact your Viessmann sales representative or Viessmann directly – (in Canada at 1-800-387-7373 or in the U.S. at 1-800-288-0667).

The flue gas temperature exiting a gas-fired condensing heating boiler depends on a number of factors; some impact more than others:

- The maximum allowable supply water temperature rating on the heating boiler or the maximum adjustable aquastat or limit settings.
 The Vitodens 200 is limited to a max. supply water temperature of 75° C (167° F) or 80° C (176° F) (depending on model) and the Viessmann Vitodens 100 series is limited to a max. water supply temperature of 80° C (176° F) (depending on model), plus cut in and cut off differential.
- 2) Venting with a coaxial vent pipe system, where fresh outside air moves around the PPS pipe, preheats the combustion air and cools flue gas temperature further.
- 3) The heating boiler utilizing one separate vent pipe and a separate fresh air intake pipe.
- 4) Boiler utilizes standard room air for combustion air or outside air directly.

. 6

- 5) Flue gas velocity within vent system (vent length and restriction).
- 6) Possible vent restrictions (partial icing or blockage of vent terminal and/or air intake).

2



- 7) Excessive wind and pressure impact on terminations.
- 8) Possible partial heat exchanger flue gas passageway blockage.
- 9) Cycling frequency pending on control strategy, system water flow, zoning, etc.

After all of the above is considered, is there a safety margin left? After all, reliability and dependability for heating comfort are key factors in our opinion.

The main factor influencing flue gas temperature is however the return water temperature to the heating boiler. This is the primary influence on how high the flue gas temperature will go and exit into the actual flue pipe.

Both models of Viessmann heating boilers are certified to ANSI Z21.13 CSA 4.9 Low Pressure Steam and Hot Water Heating Boiler Standard by CSA. The test procedure within this particular standard calls for a boiler water supply temperature maintained until the limit control functions \pm 3° C (\pm 5° F). When the boiler is tested under this criteria and a very low return temperature is selected (by the manufacturer), it will drive the flue gas temperature extremely low. Typically the flue gas temperature on both Viessmann heating boilers is between 5° C (9° F) and 15° C (27° F) above the return water temperature; therefore, for example, with a low return water temperature selection of 27° C (80° F) into the boiler, a flue gas temperature of 42° C (107° F) would be the net result. This flue gas temperature would not pose a problem in general for any type of PVC or ABS material; however, this test with a very large temperature differential of 55° C (100° F) between supply and return is not realistic. Also, at that temperature differential, the flow rate through the boiler would only be 20% of the actual required flow for a typical 11° C (20° F) hydronic system design temperature differential; again, not realistic in an everyday install.

Example under full input - design condition:

If the boiler water supply temperature would be 82° C (180° F), provided the boiler is certified to that temperature, then one would typically assume a temperature differential of 11° C (20° F) and therefore the return water temperature would return back at 71° C (160° F) to the heat exchanger. The dew point of natural gas is 57° C (135° F) at sea level.

The boiler would not condense anymore and the stack temperature would certainly be higher than the return water temperature of 71° C (160° F). It would probably reach the 85° C (185° F) to 88° C (190° F) mark.

This operating condition now clearly shows flue gas temperatures higher than what the limit is on standard PVC, CPVC and ABS. Even if the heating boiler has a limit at 71° C (160° F) set for the boiler water supply temperature and an 11° C (20° F) spread to the return water temperature, the return temperature would still be 60° C (140° F), the flue gas temperature could exceed the maximum listed temperature limits.

Especially when heating boilers are utilized to provide domestic hot water through an indirect-fired domestic hot water storage tank, return temperatures back to the boiler, when the tank temperature reaches 60° C (140° F), will rarely be less than 60° C (140° F) due to obvious reasons and higher flue gas temperatures will be the result again.

In our evaluation for suitable vent pipe material, we have looked at the following data:

. L

>

VIESMANN

Present Status for Non-Metallic Gas Vent Material

		PVC (DWV) as Plumbing Material	PVC as Gas Vent Material
	Temperature rating	prohibited	149° F (65° C)
Canada	Approvals	ASTM	ULC - \$636
	Supplier	several	IPEX only (presently)
Planet Street	Temperature rating	158° F (70° C)	no listing
U.S. A .	Approvals	ANSI	UL 1738
	Supplier	several	

Canada	Temperature rating	CPVC as Plumbing Material prohibited ASTM	CPVC as Gas Vent Material 194° F (90° C) ULC - S636
Canada	Approvals Supplier	several	IPEX only (presently)
U.S.A.	Temperature rating Approvals	210° F (99° C) ANSI	no listing UL 1738
	Supplier	several	

Canada	Temperature rating Approvals Supplier	ABS as Plumbing Material prohibited ASTM several	ABS as Gas Vent Material prohibited failed the ULC test none
U.S. A .	Temperature rating Approvals Supplier	180° F (82° C) ANSI several	no listing UL 1738

This, in our technical opinion, renders standard PVC, CPVC and ABS unfit for venting a Viessmann Vitodens 200 or Vitodens 100 series gas-fired condensing heating boiler. Also, the Canadian Gas Fired Equipment Installation Code CSA B149.1 has already prohibited the use of this material. Furthermore to our knowledge, no manufacturer of DWV (drains, waste, vent) PVC had it certified or recommends this material as a vent pipe for gas-fired condensing heating boilers.

7

..



DWV approved materials are mostly used in sewer and drainage applications within buildings or below ground. These materials are not subject to this type of temperature (erratic temperature changes) with constant pH levels between 3 and 4, and none of these materials are typically exposed to long periods of ultraviolet light or severe cold outdoor temperatures, when used in vent terminations where all the foregoing conditions occur at the same time. In addition, the expansion factor of the pipes has to be considered, possible change of support, including feasibility of adhesives and terminations.

As high limits and low water cutoffs are safety measures for the pressure vessels, so is venting the safety measure for disposing flue gas.

A venting system will become part of a home. It may get enclosed in a wall or a ceiling and therefore not be easily accessible in the future for inspection.

For the reasons mentioned above, Viessmann does not recommend and is not certified on the Vitodens 200 and Vitodens 100 series with DWV PVC, CPVC or ABS, even though our listed efficiencies are some of the highest in the industry.

PVC, CPVC and ABS may only be used for the combustion air intake side when a separate pipe is used for the combustion air intake system and the separate flue gas pipe is constructed utilizing stainless steel or CPVC ULC-S636.

We recommend, and are approved for, venting and combustion air intake with a coaxial PPS / aluminum venting system for combined venting and combustion air supply.

For separate flue gas venting, both heating boilers are approved with CPVC 90° C (194° F) according to ULC-S636 or AL29-4C stainless steel venting, in combination with DWV PVC, CPVC, ABS or even galvanized sheet metal ducting for the separate air intake for combustion air. Of course, CPVC, ULC-S636 or stainless steel may also be used for the air intake side.

For more information, please contact the technical department at Viessmann in Waterloo 1-800-387-7373, Langley 1-877-853-3288 or Warwick 1-800-288-0667

With best regards,

Harald Prell President Viessmann Manufacturing Company Inc.

7

.1

Component Installation Guide (continued)

Coaxial vent termination installation



Fig. 8 Coaxial vent termination for vent system 60/100, 80/125 and 100/150

Leg	end

- Vent termination
- 2 Wall flashing (inside)
- ③ Wall flashing (outside)

Vent system	a in / mm	b in / mm
60/100	3.8 / 97	27.8 / 705
80/125	5.3 / 135	29 / 735
100/150	7.3 / 185	30.8 / 782

Table 7. Wall opening information

Vent system	Opening Ø
60/100	4¼″ / 108 mm
80/125	5¼" / 133 mm
100/150	6 ³ / ₈ " / 160 mm

Side wall vent termination installation

- 1. Provide side wall opening (see table above) to install vent termination.
- Slide vent termination (1) with wall flashing (3) into opening (drain openings (5) must be located on the outside of the wall, pointing downward).
- Attach wall flashing (2) to inside of wall using the screws and plugs provided.
- Attach wall flashing ③ to outside of wall.

6"/152 mm

Fig. 9

When installing a side wall vent system with the minimum equivalent vent length (87° elbow and vent termination shortened to d₁(see page 36) from boiler back to the outside wall, a wall thickness of at least 6" / 152 mm is required.

For walls with a thickness less than 6''/152 mm, means must be provided to offset the boiler from the wall (see fig. 9).

IMPORTANT

See table 29 (page 36) for total length of vent termination pipe (dimension d). If required the vent termination may be shortened to dimension d_1 as shown in table 29 (page 36).

This is the minimum length for installation on a nominal wall thickness of 6" / 152.5 mm.

IMPORTANT

Potential gaps between the vent-air intake and the surrounding construction which may cause air, rain or flue gases to leak into the wall or the building, must be sealed with approved outdoor sealant/caulking to prevent leakage of any kind.

Side Wall Venting Layouts (Coaxial) (continued)



Fig. 5 Side wall venting layout, using basic vent kit components for vent systems 60/100, 80/125 and 100/150

1 Mounting clip (c/w 4" screw)	
(2) Brass adaptor (supplied)	
(3) All-threaded rod (field supplied)	

See section Installation of Anchoring System on page 21 in this manual for detailed installation information of anchoring system.

General Information

General Installation Information (continued)

Boiler vent connections

Boiler models Vitodens 100-W WB1B 26, 35 and Vitodens 200-W WB2B 19, 26, 35



For double-pipe installations, the combustion air inlet cover must be in place.

Fig. 1



Remove and discard combustion air inlet cover when installing coaxial vent pipe system.

Fig. 2

Single- or double-pipe installation (see Fig. 1

Legend

- Combustion air (requires 2" CPVC adaptor)
- (B) Flue gas (requires 2" CPVC adaptor)

Legend

(A) Combustion air(B) Flue gas

Coaxial vent pipe system (see Fig. 2 and 3)

Boiler models Vitodens 200-W WB2B 45, 60 and WB2B 80, 105



Fig. 3

Safety

Important Regulatory and Installation Requirements (continued)

Table 1. Clearance to combustibles

Тор	Front	Rear	Left	Right	Vent pipe
0" / mm	0″ / mm	0″ / mm	0″ / mm	0" / mm	0″ / mm

Table 2. Recommended minimum service clearance

Тор	Front	Rear	Left	Right
12" / 305 mm	28″ / 711 mm	0″ / mm	6″ / 152 mm	0″ / mm

For details refer to Vitodens 100-W and 200-W Installation Instructions (as may be applicable).

For coaxial venting systems only:

In the event of flue gas leakage, the boiler enclosure provides a tightly sealed system on the inside of the building. Escaping flue gas is fed back into the combustion air intake, preventing any flue gas from entering

the living area.

The venting system may be concealed in a chase.

Minimum and maximum wall thickness through which the horizontal vent-air intake termination may be installed: Minimum: 1" / 25.4 mm Maximum: 19.6" / 497.8 mm

Vent-air intake system must be properly installed and sealed.

If co-axial venting system passes through an unheated space, such as an attic, it must be insulated. The insulation must have an R value sufficient to prevent freezing of the condensate. Armaflex insulation with 1/2" thickness and higher can be used.

The Vitodens 100-W and 200-W boilers are NOT approved for common-venting applications. Do not attempt to common-vent the Vitodens 200-W boiler with any other appliance.

Failure to ensure that all flue gases have been safely vented to the outdoors can cause property damage, severe personal injury, or loss of life. Flue gases may contain deadly carbon monoxide.

Under certain climatic conditions some building materials may be affected by flue products expelled in close proximity to unprotected surfaces. Sealing or shielding of the exposed surfaces with a corrosion resistant material (e.g. aluminum sheeting) may be required to prevent staining or deterioration. The protective material should be attached and sealed (if necessary) to the building before attaching the vent termination. It is strongly recommended to install the vent termination on the leeward side of the building.

5368 815 v2.6

Component Installation Guide (continued)

Coaxial vent termination installation (continued)



Fig. 10 Protective screen, side view for vent systems 60/100, 80/125 and 100/150

Dimensions

Model	Vent system	а	b	С
WB1B 26,35 WB2B 19, 26, 35	60/100	12" / 305 mm	8.2" / 208mm	9.5″ / 241 mm
WB2B 45, 60	80/125	12" / 305 mm	6.7″ / 170mm	9.5″ / 241 mm
WB2B 80, 105	100/150	12" / 305 mm	4.7" / 120mm	9.5″ / 241 mm



IMPORTANT

The protective screen MUST be installed.

 Connect vent termination from inside and route toward boiler with min. 3° downward slope.



Fig. 11 Protective screen, front view

6 Protective screen

5368 815 v2.6

Installation and Service Instructions



for use by heating contractor

Vitodens 100-W WB1B Series

Wall-mounted, gas-fired condensing boiler

Heating input

37 to 118 MBH 10.8 to 34.5 kW



VITODENS 100-W.



.)

. L

Boiler / Control Connections

Venting Connection



For detailed installation information and specific venting requirements, reference the Vitodens Venting System Installation Instructions supplied with the boiler.

CAUTION

Under certain climatic conditions some building materials may be affected by flue products expelled in close proximity to unprotected surfaces. Sealing or shielding of the exposed surfaces with a corrosion resistant material (e.g. aluminum sheeting) may be required to prevent staining or deterioration. The protective material should be attached and sealed (if necessary) to the building before attaching the vent termination. It is strongly recommended to install the vent termination on the leeward side of the building.

(.

Electrical Connections

Rotating the control unit and opening the power / pump module







5368 828 v1.2

- 1. Loosen the screws underneath the boiler but do not remove them. Remove the cover (as shown on page 18).
- 2. Pull tabs outwards.
- 3. Flip control unit down.
- 4. Remove cover by releasing tabs if necessary.
- 5. Unlock 4 spring-loaded lock screws (B) and remove cover plate of the power pump module.

IMPORTANT

Both the control unit and the power pump module have labels and stickers containing important information. Read and follow their respective instructions.

IMPORTANT

The ON / OFF switch located on the boiler does not disconnect power to power / pump module, therefore the main service switch or breaker must be turned off.

Note on connection of accessories For other required installation steps, please reference the Installation Instructions for the accessory part.