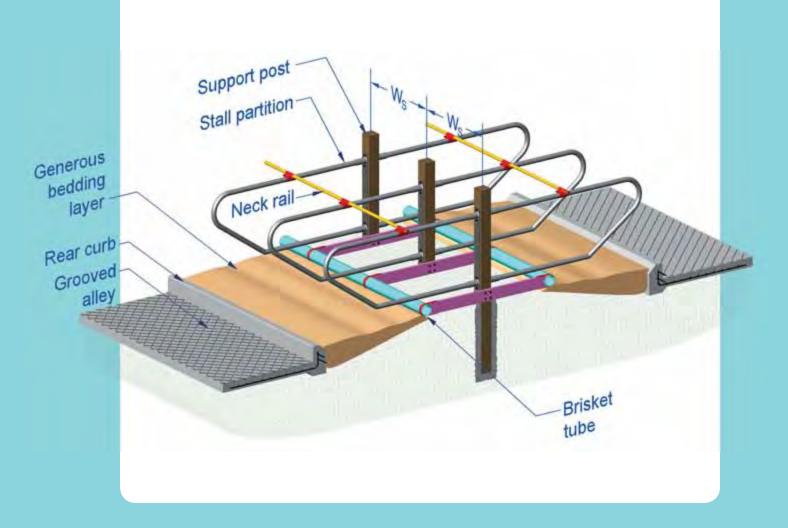
Penn State Housing Plans for Milking and Special-Needs Cows



Natural Resource, Agriculture, and Engineering Service
Cooperative Extension

Penn State Housing Plans for Milking and Special-Needs Cows

Robert E. Graves, Professor Department of Agricultural and Biological Engineering

Dan F. McFarland, Regional Agricultural Engineer Cooperative Extension York County

John T. Tyson, Regional Agricultural Engineer Cooperative Extension Mifflin County

Thomas H. Wilson, Regional Agricultural Engineer Cooperative Extension Crawford County

> Penn State Cooperative Extension The College of Agricultural Science The Pennsylvania State University

NRAES-200 July 2006

 \odot 2006 by NRAES (Natural Resource, Agriculture, and Engineering Service). All rights reserved. Inquiries invited.

ISBN-13: 978-1-933395-11-1 ISBN-10: 1-933395-11-7

Acknowledgments

Plan sheet design: William K. Moyer Plan CAD: Hathairat (Bell) Maneetes Plan CAD: Tian Boon (Chris) Soh

Library of Congress Cataloging-in-Publication Data

Penn State housing plans for milking and special-needs cows / Robert E. Graves ... [et al.].

p. cm. — (NRAES; 200) ISBN-13: 978-1-933395-11-1 (pbk.)

ISBN-10: 1-933395-11-7 (pbk.)

1. Cows—Housing—Designs and plans. I. Graves, Robert Edwin, 1944– II. Natural Resource, Agriculture, and Engineering Service. Cooperative Extension. III. Series: NRAES (Series); 200.

TH4930.P455 2006 636.2'142--dc22

2006048105

Requests to reprint parts of this publication should be sent to NRAES. In your request, please state which parts of the publication you would like to reprint and describe how you intend to use the material. Contact NRAES if you have any questions.

To order additional copies, contact:

Natural Resource, Agriculture, and Engineering Service (NRAES)

Cooperative Extension

PO Box 4557, Ithaca, New York 14852-4557 Phone: (607) 255-7654 • Fax: (607) 254-8770

E-mail: NRAES@CORNELL.EDU • Web site: WWW.NRAES.ORG

CONTENTS

ABOUT	THIS BOOK			
SECTION ONE: FREESTALL DAIRY COW SHELTERS				
DIP 201	Two Row Head to Head Freestall Shelter, outside feed driveway—62 stalls			
DIP 202	Two Row Tail to Tail Freestall Shelter, outside feed driveway—62 stalls			
DIP 203	Three Row Freestall Shelter, outside feed driveway—87 stalls			
DIP 211	Two Row Head to Head Freestall Shelter, inside feed driveway—62 stalls			
DIP 212	Two Row Tail to Tail Freestall Shelter, inside feed driveway—62 stalls			
DIP 213	Three Row Freestall Shelter, inside feed driveway—87 stalls			
DIP 221	Four Row Head to Head Freestall Shelter, drive-through feeding, 124 stalls—2 groups			
DIP 222	Four Row Tail to Tail Freestall Shelter, drive-through feeding, 124 stalls—2 groups			
DIP 223	Six Row Freestall Shelter, drive-through feeding, 174 stalls—2 groups			
DIP 224	Four Row Head to Head Freestall Shelter, drive-through feeding, 248 stalls—4 groups			
DIP 225	Four Row Tail to Tail Freestall Shelter, drive-through feeding, 248 stalls—4 groups			
DIP 226	Six Row Freestall Shelter, drive-through feeding, 348 stalls—4 groups			
DID 051	Cow Konnol 30			

SECTION TWO: FACILITIES FOR COWS WITH SPECIAL NEEDS

(dry cows, maternity, mobility pre-/post-fresh, hospital)

DIP 401	Dry or Mobility Cow Bedded Pack Shelter—fits two row freestall 42
DIP 402	Dry or Mobility Cow Bedded Pack Shelter—fits three row freestall 44
DIP 403	Dry Cow, Later Gestation Heifer Bedded Pack Shelter for 20 & 15 cows and 12 heifers—fits two row freestall
DIP 411	Dry Cow-Maternity Freestall Shelter per 150 milking cows 48
DIP 412	Dry Cow, Post-Fresh Freestall and Maternity Shelter per 150 milking cows
DIP 421	Pen Shelter, drive-through feeding54
DIP 422	Gated Bedded Pens and Two Row Head to Head Freestall Shelter, inside feed driveway
DIP 431	Maternity and Pre-/Post-Fresh Freestall Shelter
DIP 441	Dry Cow Bedded Pack, Maternity, Post-Fresh Freestall Shelter, drive through feeding
DIP 442	Bedded Pack, Maternity, Post-Fresh Freestall Shelter with central animal lane and two feed driveways
DIP 443	Complete Maternity, Dry Cow, Pre-/Post-Fresh (and Convalescence) Freestall Shelter, drive-through feeding (per 100 milking cows) 69
BUILDII	ON THREE: NG COMPONENT DETAILS ors, freestalls, waterers)
DIP 801	Typical Sidewall—Outside Alley74
DIP 802	Typical Sidewall—Freestall Row

Ridge Openings for Naturally Ventilated Dairy Shelters.....80

Cow Freestall (Cubicle), types and details......85

Waterer Locations for Dairy Cattle97

DIP 803

DIP 811

DIP 821

DIP 831

DIP 841

DIP 851