



2016
**EGG INDUSTRY
ISSUES FORUM**

PREPARING FOR THE FUTURE



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WHAT ARE THE TWO LEADING PRESSURES THE INDUSTRY FACES TODAY?



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CUSTOMER REQUIREMENTS

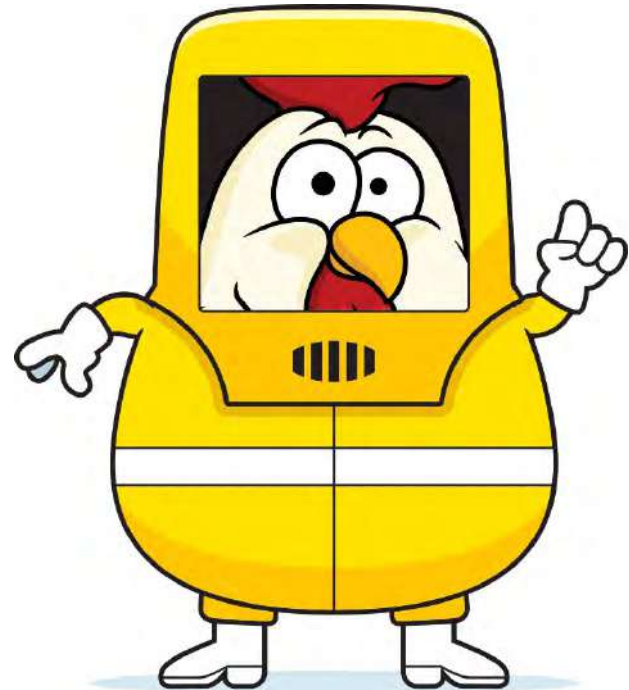
➤ *Cage Free Production*



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BIOSECURITY

➤ *Disease prevention !*



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What is the industry thinking?



Circa 1958



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BREAKING OUT:

Today's approach to cage-free

- Aviary Cage-free – pullet growing
- Aviary Cage-free – layer housing



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AVIARY CAGE-FREE PULLET



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AVIARY CAGE-FREE LAYER



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IT'S ALL ABOUT SPACE!

Work with the space available to maximize efficient use and cost of converting old—or building new—cage-free layer and pullet houses



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RENOVATION: Option 1

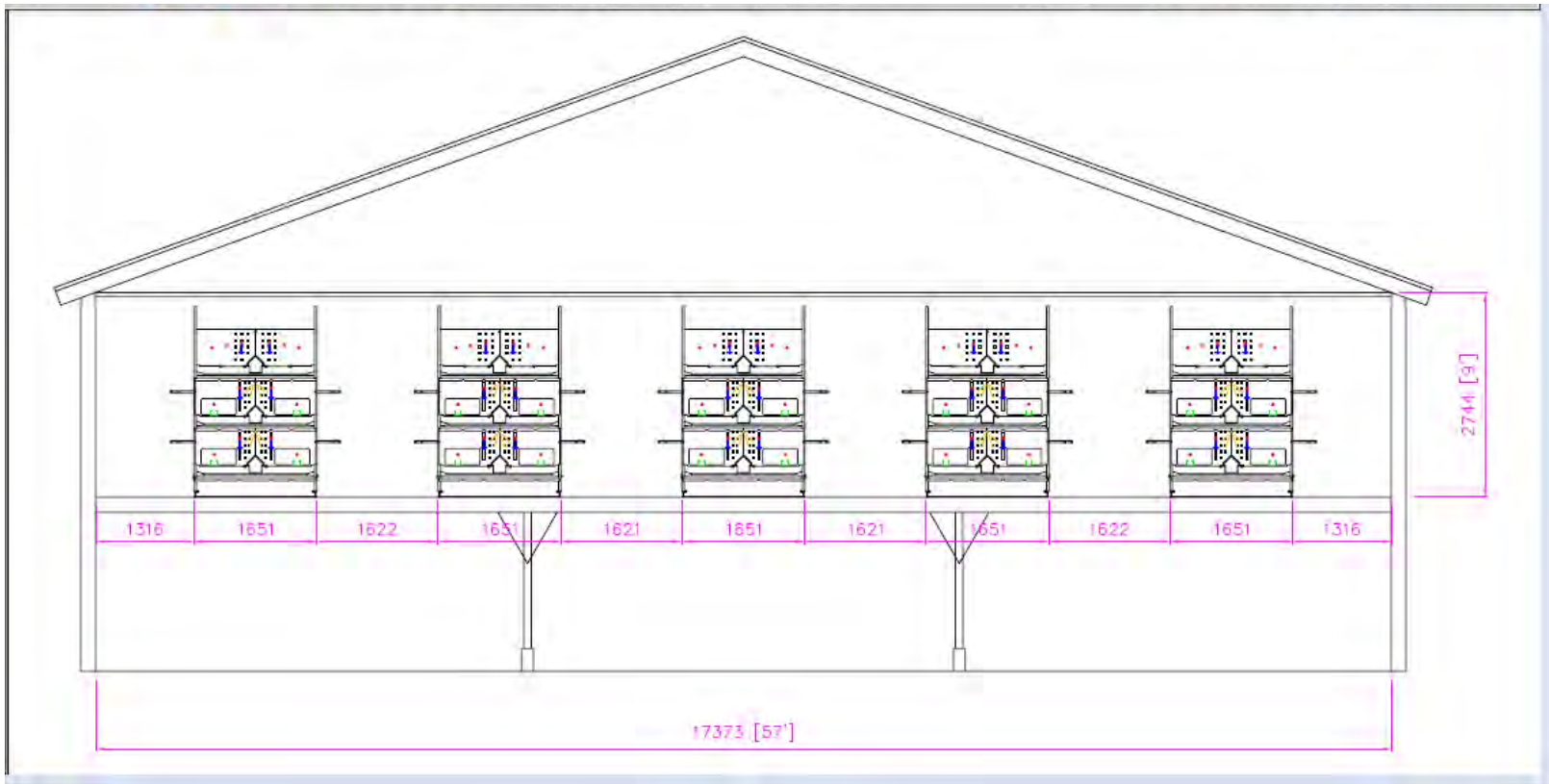
Cage Pullet High-Rise to Cage-Free Pullet one floor with birds

- Remove all interior cage equipment, flooring and floor joists
- Replace floor joist and floor with new tongue and groove plywood .
- Install Floor vents for ventilation
- Upgrade electrical , and lighting to LED
- Build manure storage in back section of building
- Install aviary cage-free equipment
- Install new feed fill system



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RENOVATED Plan Top Floor

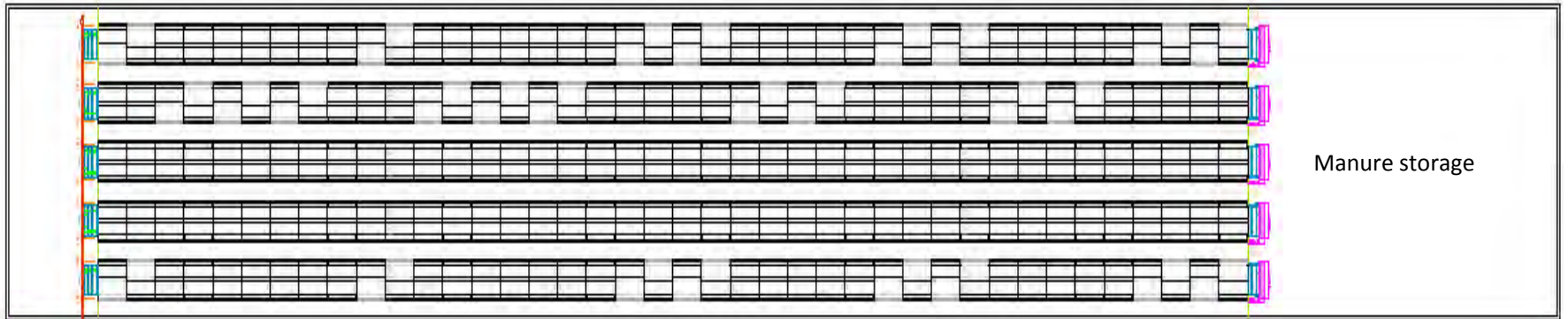
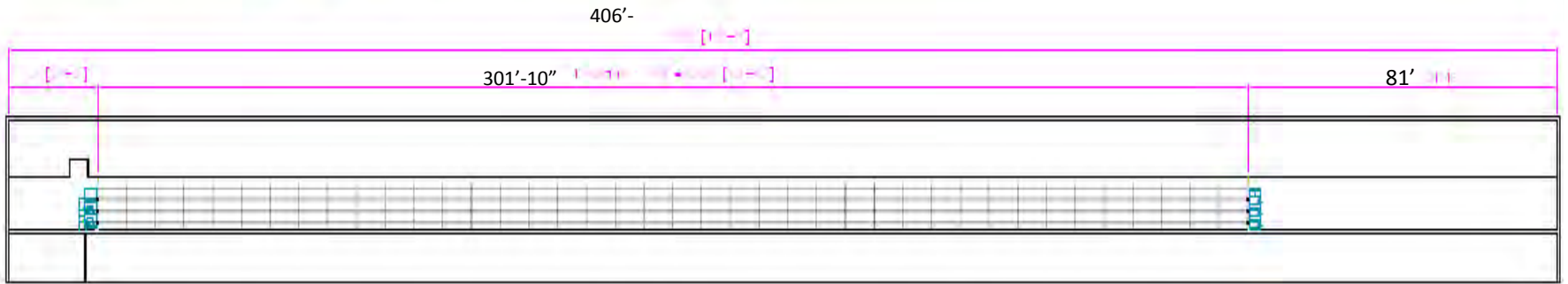


72,000 birds



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RENOVATION TOP FLOOR PULLET BARN



[-]



5-row, 4-tier
high-rise pullet barn
with cages



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Pullet cages
removed



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Floor replaced
with added
ventilation slots



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Original ceiling
inlets



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Bottom floor
all ventilation
fans remain



Ceiling inlets,
floor slot for air
flow to exhaust
fan located in
bottom floor



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Aviary pullet grow equipment



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5-row system



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AVIARY PULLET SYSTEM



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RENOVATED TWO-STORY, CAGE-FREE AVIARY PULLET BARN

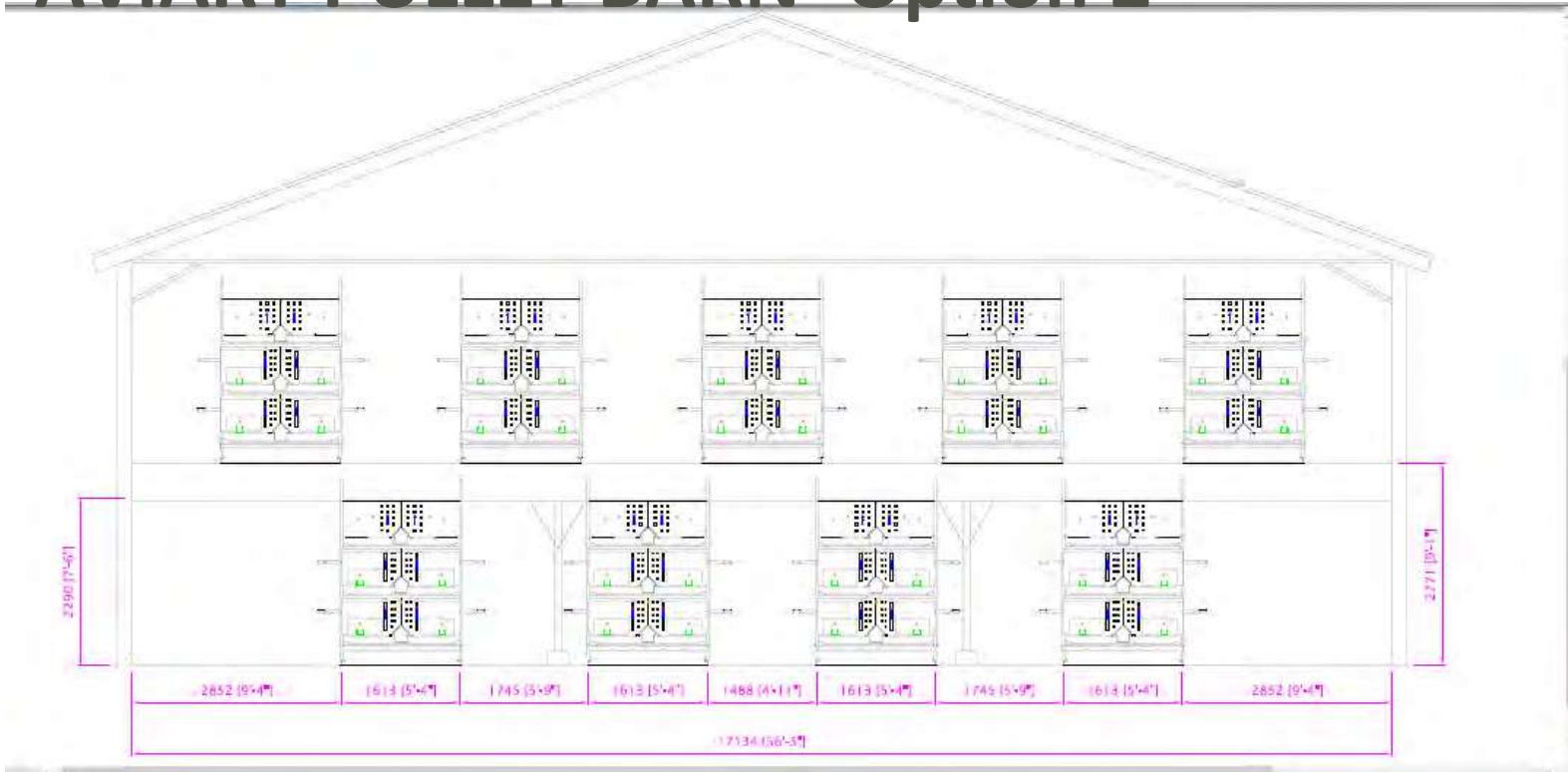
Option 1

- Building dimensions:
 - 57' x 410' x 18'
 - 57' x 335' x 9' bird area
 - 57' x 75' x 3' manure storage
- Bird capacity: 72,000
- Cost for renovation and equipment: \$14/bird



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RENOVATION TWO-STORY CAGE FREE AVIARY PULLET BARN- Option 2

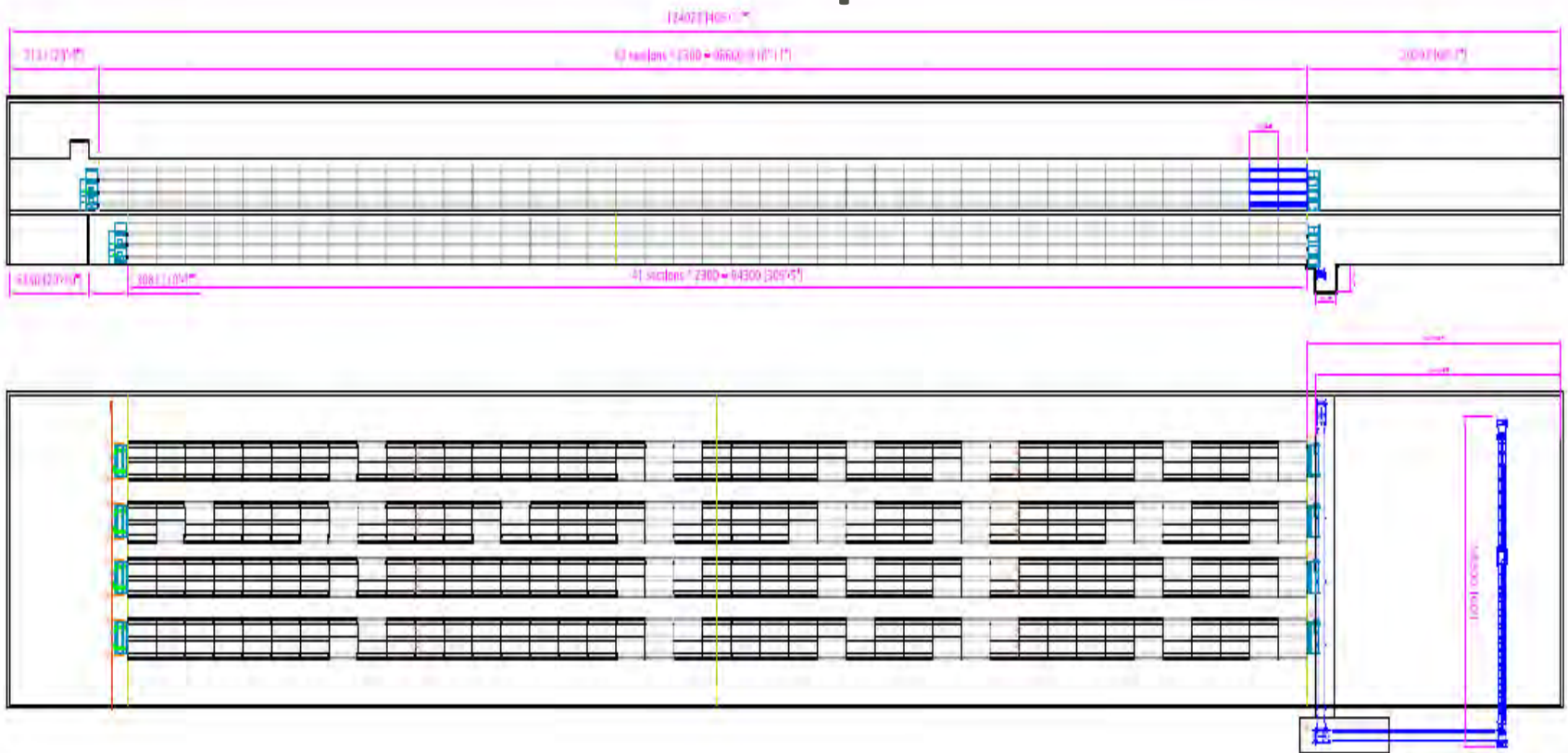


144,000 birds



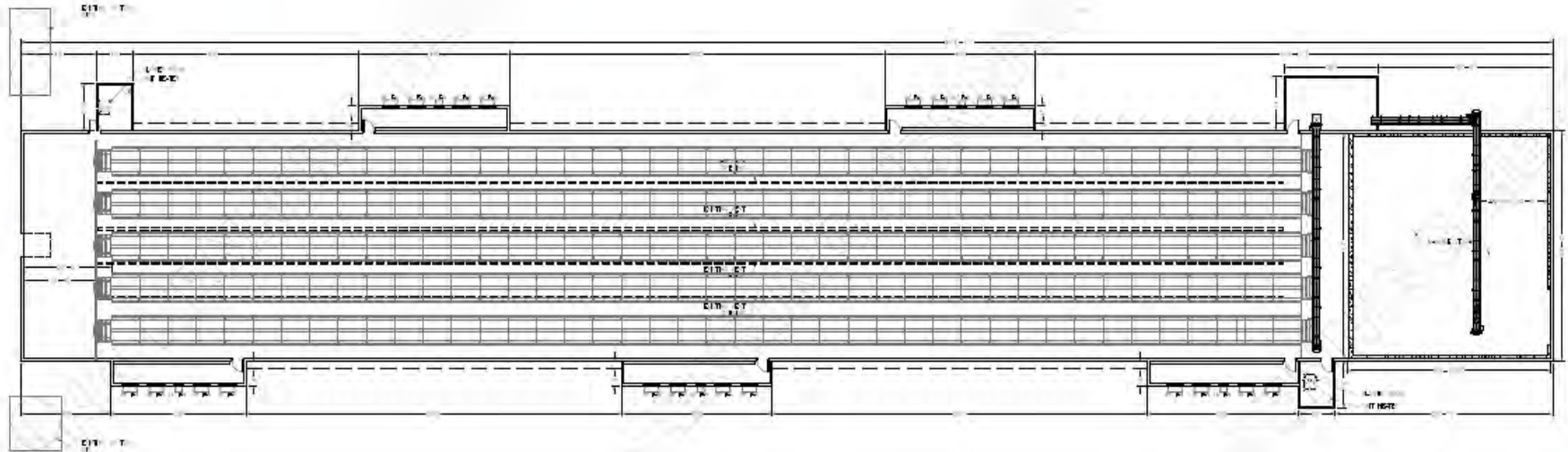
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RENOVATION TWO-STORY CAGE FREE AVIARY PULLET BARN- Option 2



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RENOVATION TWO-STORY CAGE FREE AVIARY PULLET BARN- Option 2

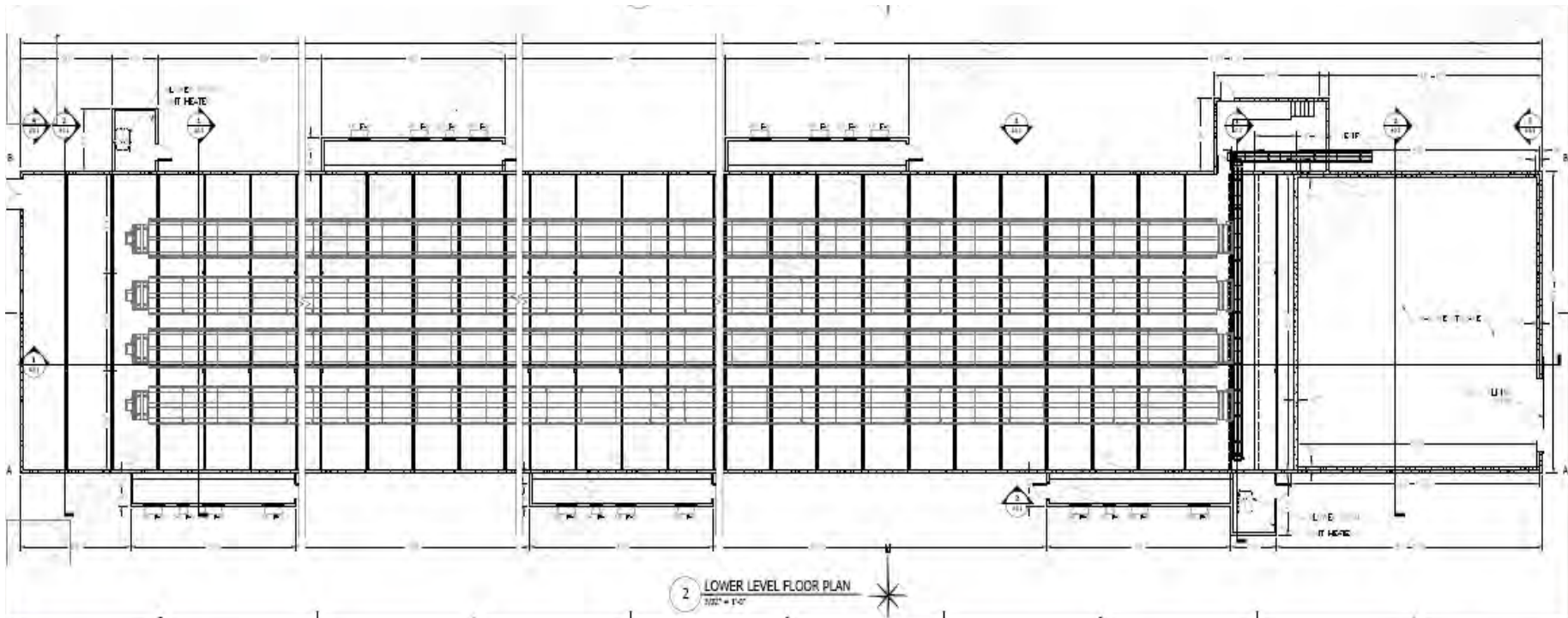


1 UPPER LEVEL FLOOR PLAN
1/16" = 1'-0"



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RENOVATION TWO-STORY CAGE FREE AVIARY PULLET BARN- Option 2



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RENOVATED TWO-STORY CAGE FREE AVIARY PULLET BARN – Option 2

Option 2

Includes second ventilation system, controls, manure conveyors, feed supply, and expanded electrical service

- Building dimensions:
 - 57' x 410' x 18'
 - 57' x 335' x 9' bird area x 2 rooms
 - 57' x 75' x 8' manure storage
- Bird capacity: 144,000
- Cost for renovation and equipment: \$17.50/bird



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BREAKING OUT:

Today's approach to cage-free

- Aviary Cage-free – layer housing



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RENOVATION:

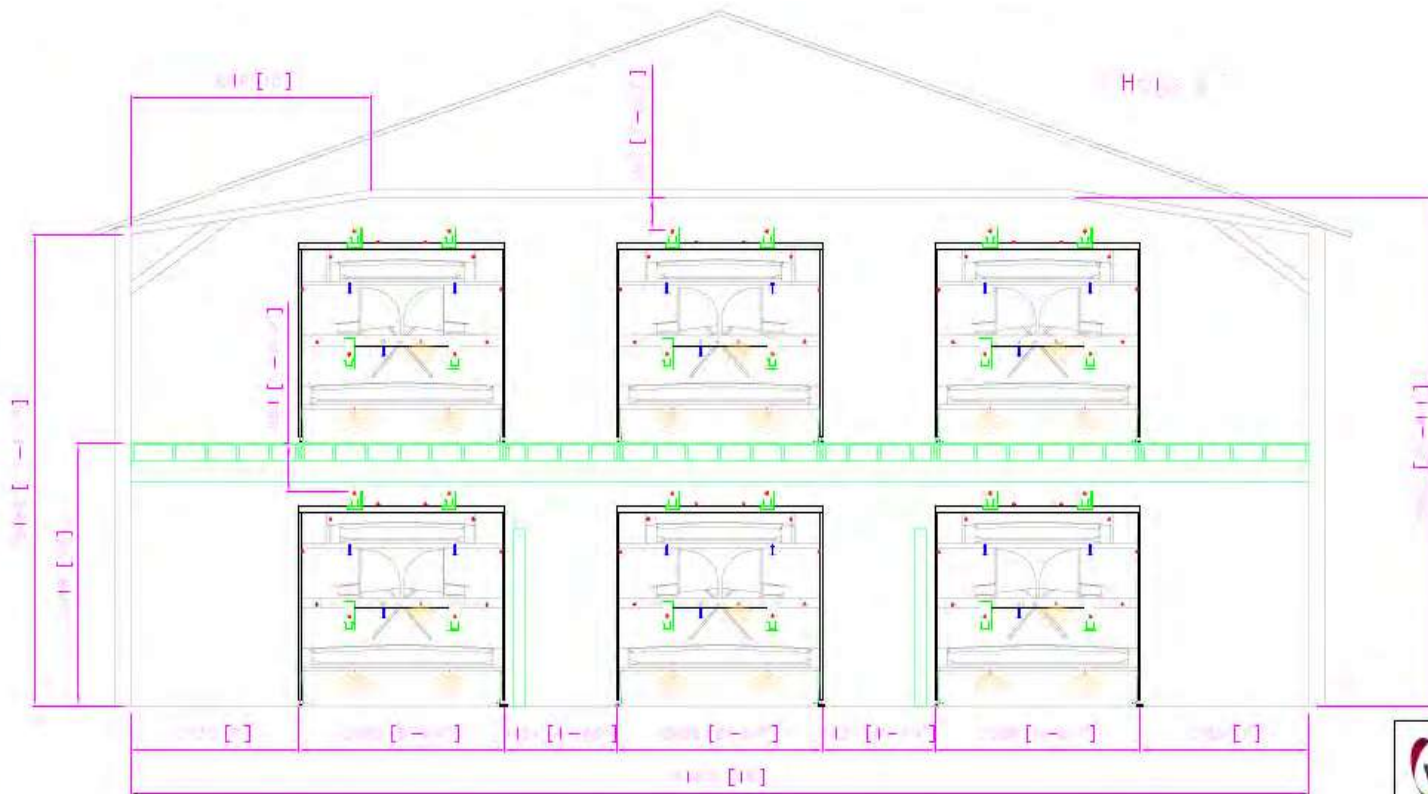
Cage High-Rise to Cage-Free Layer

- Remove all interior cage equipment, floor joists, beams and support posts
- New floor posts, beams, supports, and flooring
- New insulation and wall coverings
- Upgrade electrical and ventilation
- Build manure storage
- Install aviary cage-free equipment



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LAYOUT OF RENOVATED TWO-STORY CAGE-FREE LAYER BARN



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High-rise prior to renovation



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Cage high-rise
demolition



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Building
interior
demolition
complete



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New floor supports



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Bottom floor wall
with new insulation;
second floor
supports



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Exterior Air inlet covers both floors



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Top floor ready
for equipment



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Manure storage



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Completed
layer barn



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RENOVATED Layer High Rise to TWO-STORY CAGE-FREE Layer BARN

Conversion cost per bird includes demo, renovation, equipment, electrical, ventilation, and new manure storage.

- Building dimensions:
 - 49' x 730'
- Bird capacity:
 - 134,000 birds/1.0 ft.²
 - 111622 birds/1.2 ft.²
- Cost:
 - \$31.58/bird/1.0 ft.²
 - \$37.91/bird/1.2 ft.²



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Building new CAGE-FREE Layer BARN, includes

- Excavation ,foundation, building for birds and manure storage
- Connecting hallway for egg conveyor to processing or packing
- Electrical, plumbing for one building
- Aviary cage Free equipment and installation
- Ventilation system , fans, inlets , controls
- Feed bins and fill system
- Controller
- Manure belt ventilation
- Manure conveyors to convey to Manure storage



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Building new CAGE-FREE Layer BARN

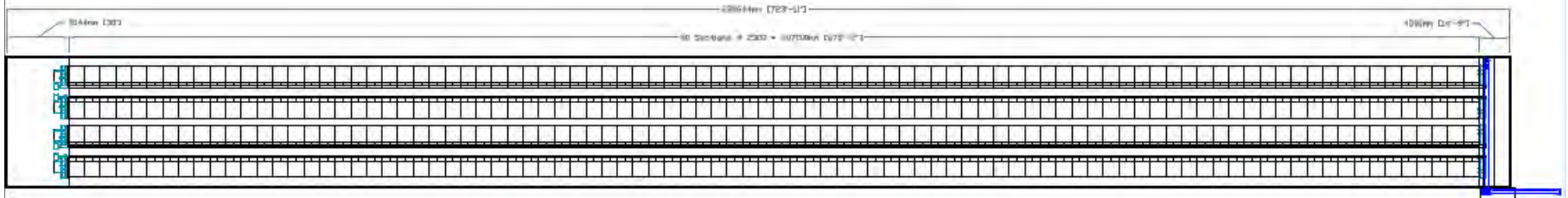
Option 1- 2 Story



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Building new CAGE-FREE Layer BARN Option 1- 62 ft. x 724 ft.- 199,480 birds

Certifier Guideline Compliance			
	System Provides	certifier guideline	
water	9.2	10	hens/ripple
feed	2.12	2.0	inches trough/bird
nest	277.1	306	hens/nest
area	1.0	1.0	sq. ft. per bird
perching	8.0	6.0	inches / bird
bird capacity	99740/floor	limited by	area



Customer: SAMPLE ONLY	
Project:	
Date:	Revision:
Reference:	

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 All dimensions in millimeters unless specified otherwise.
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Building new CAGE-FREE Layer BARN

Option 2 – 3 Story



EQUIPMENT ELEVATION AT FRONT OF BUILDING

BIG DUTCHMAN	NOT FOR CONSTRUCTION REFERENCE ONLY	NATURA 60-1902	
7000 W. 10th St. • P.O. Box 14400 Des Moines, IA 50316-0400	DRAWINGS NOT TO SCALE	EQUIPMENT LAYOUT	

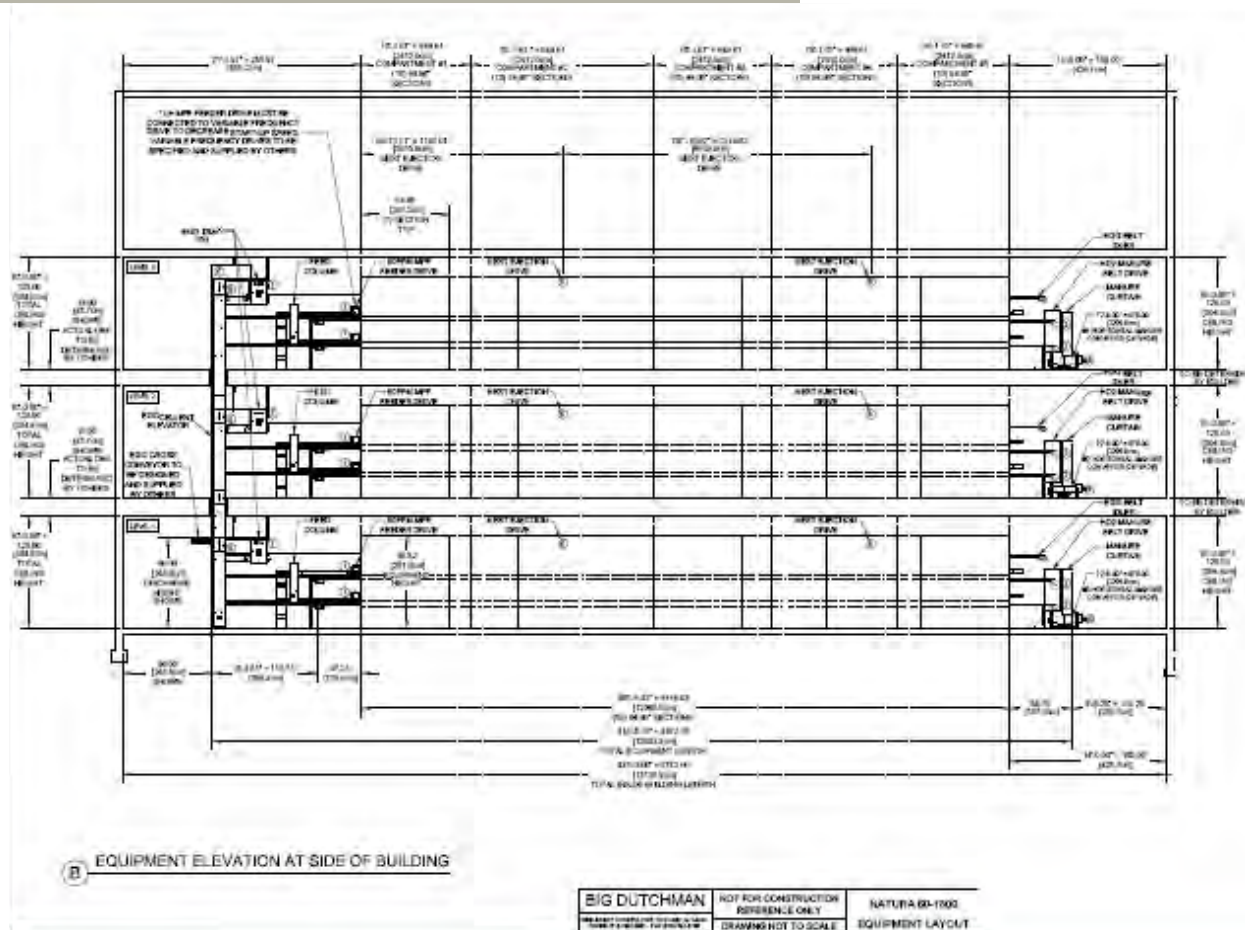


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Building new CAGE-FREE Layer BARN

Option 2- 3 Story

71 ft. x 432 ft. -136,890 birds



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TO CONVERT—OR NOT TO CONVERT?

Here are the questions.

- What is the value of the building permit?
- Are there limitations on how the new permit can be used?
- Can you get a permit? In today's world, and most area's of the country it's more difficult to obtain a permit for new construction and takes more time to gain approval.



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TO CONVERT—OR NOT TO CONVERT?

Cost Projections.

- What are the costs?
 - Cost of remodeling an existing house with new cage-free equipment, has a huge variance due to the condition the house is in. and how well the size will accommodate a cage free system. averages **\$28-\$33** /Bird
 - Cost of building new cage-free house with new equipment also has a lot of variance affected by available land space, type of construction and capacities. averages **\$29-\$39/** bird.



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IT'S ALL ABOUT SPACE!

Getting there takes a lot of evaluation on a site by site approach



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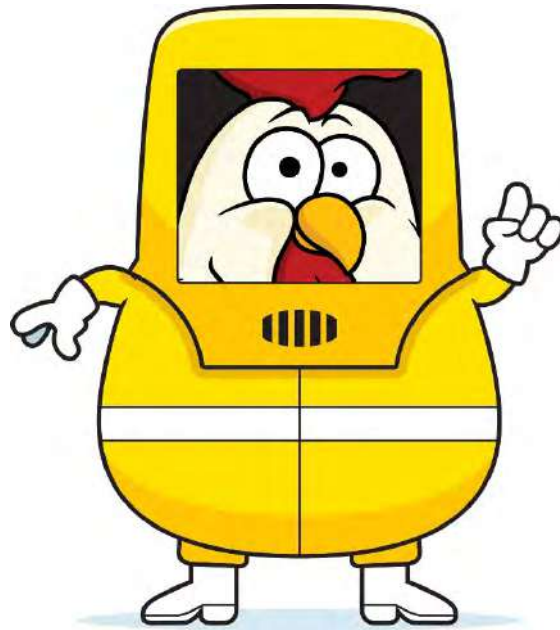
DISEASE PREVENTION THROUGH INCREASED BIOSECURITY



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Protecting the bird

Measures to prevent disease



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BIOSECURITY

Maintaining the Line of Separation (LOS)

- Biosecurity plans should incorporate the “Line of Separation” concept.
- The walls of the poultry house are the LOS.
- An entry room to the poultry house provides a line of separation marked for personnel to cross.

Figures 2, 3, and 4 are examples for LOS achievement



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Figure 2
Biosecurity Lines Example One: Each House as a Biosecure Unit

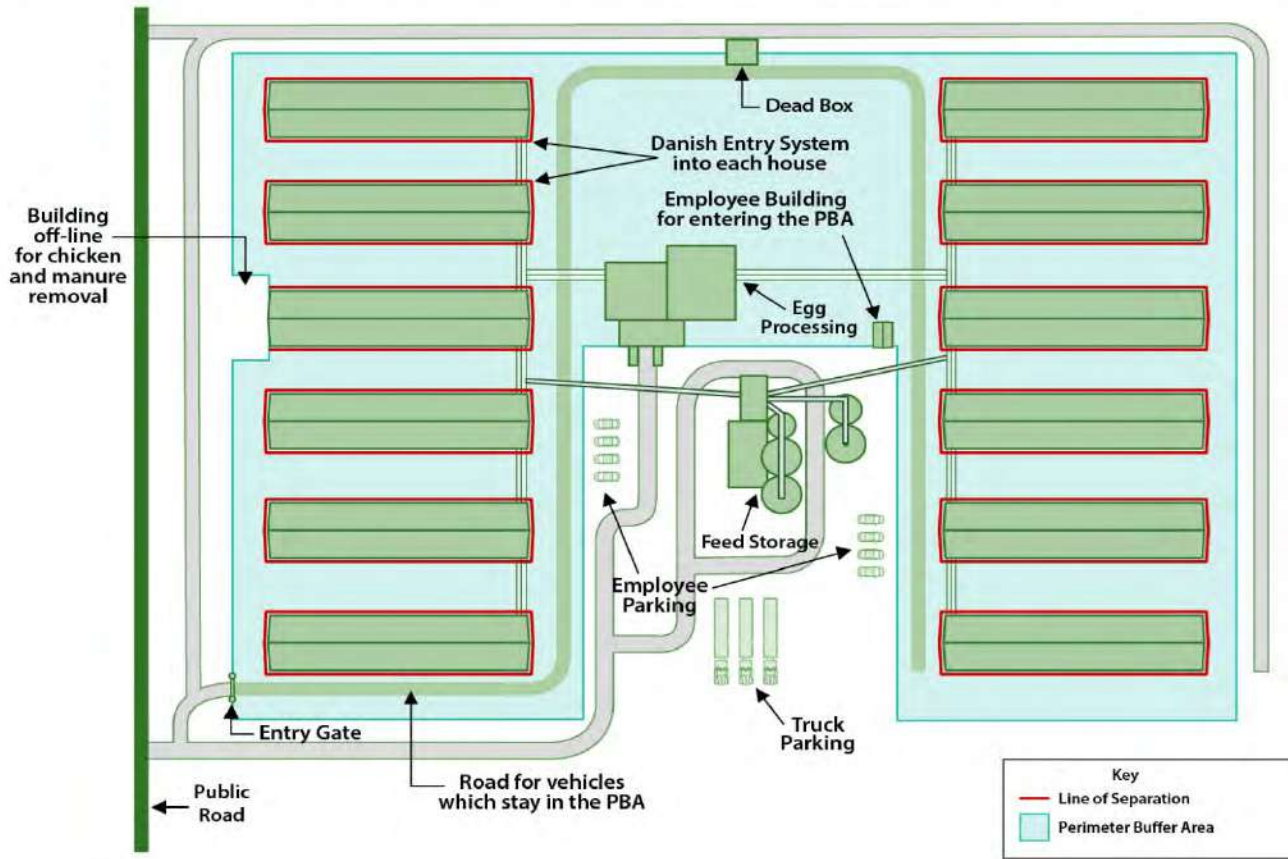


Diagram: Dr. Roth James IA State University



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Figure 3
Biosecurity Lines Example Two

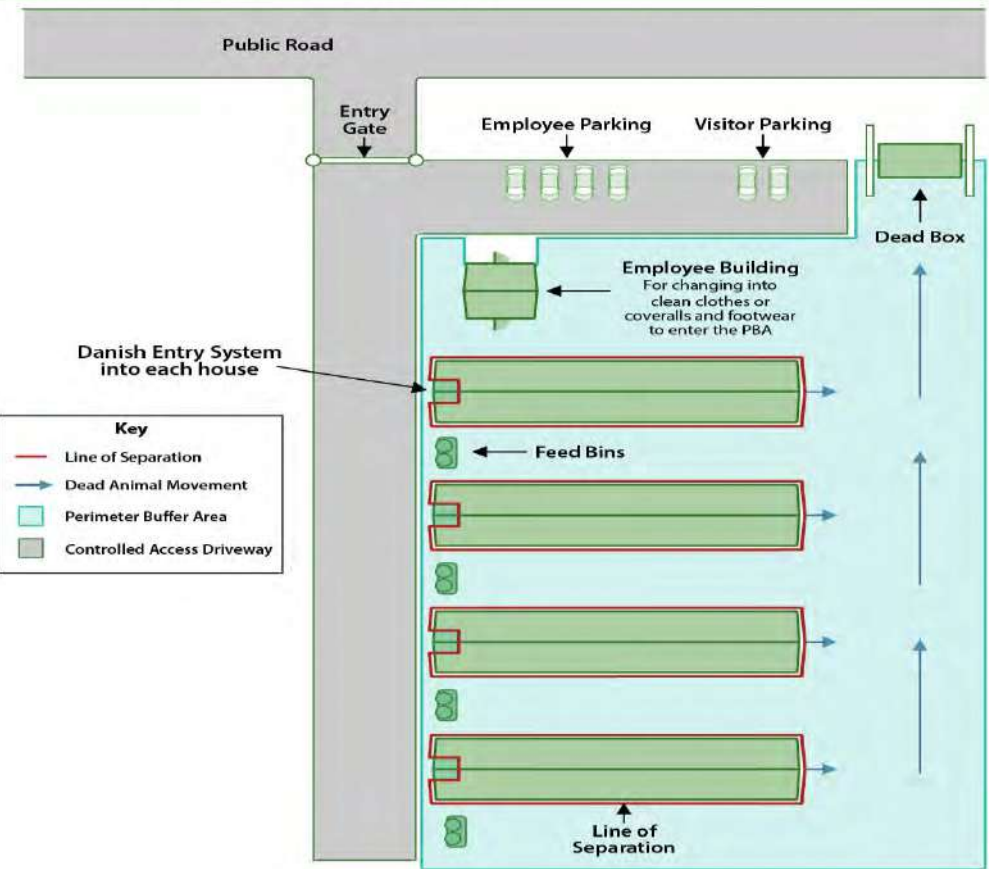


Diagram: Dr. Roth James IA State University



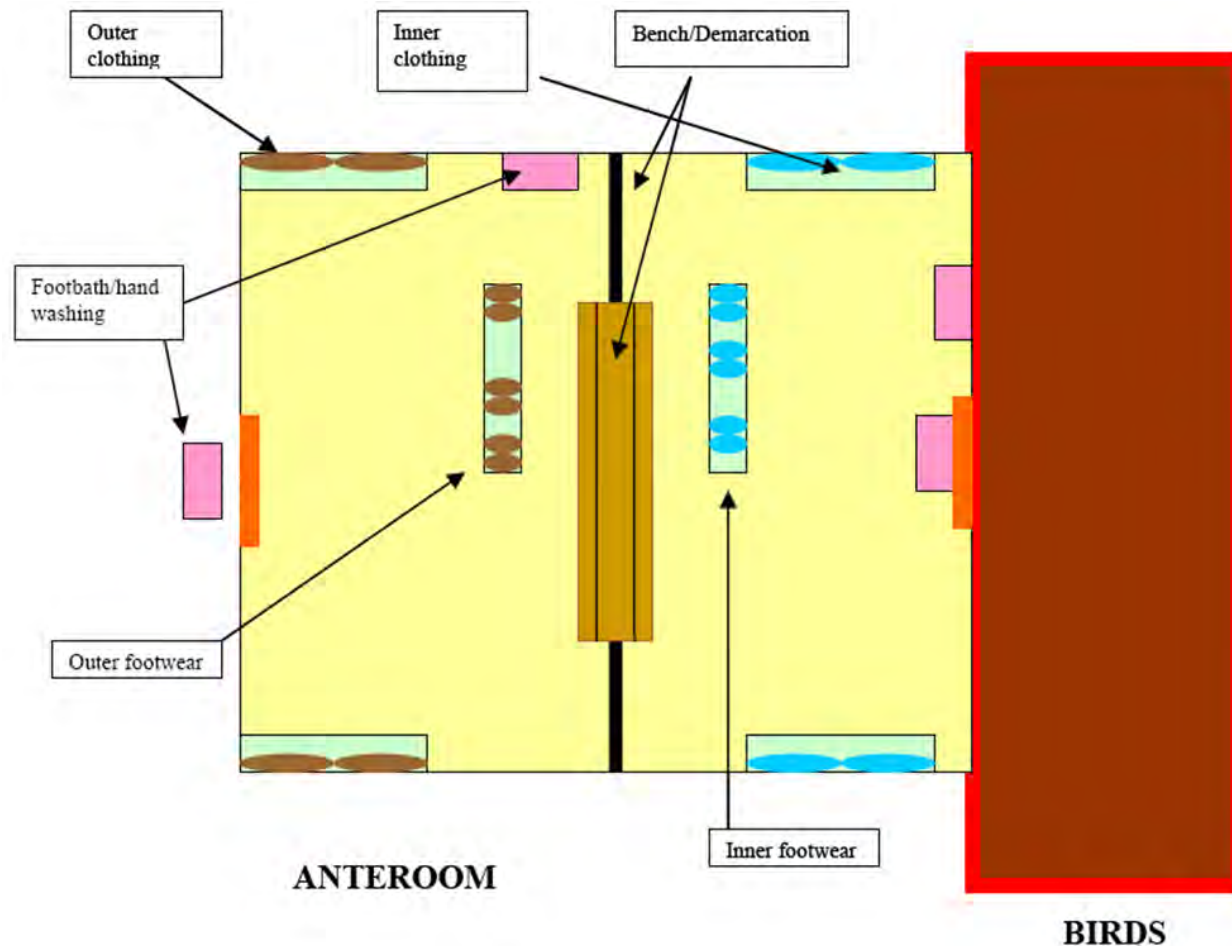
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Figure 4 BIOSECURITY LINES



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LOS ENTRANCE OPTION: *The Danish Entry*



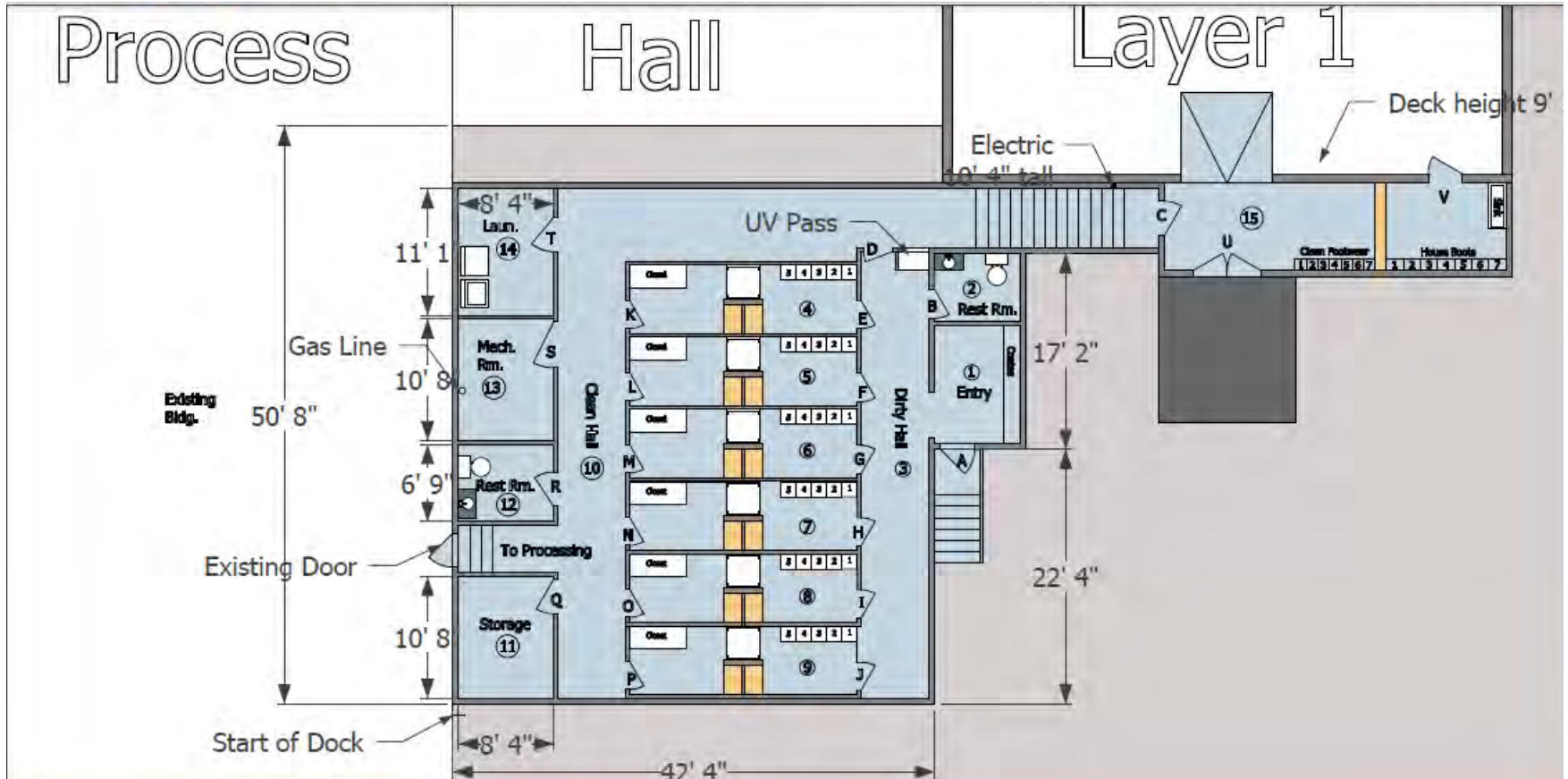
Source:

<http://www.inspection.gc.ca/animals/terrestrial-animals/biosecurity/standards-and-principles/general-producer-guide/eng/1398640321596/1398640379048?chap=9>



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LOS SHOWER ENTRANCE



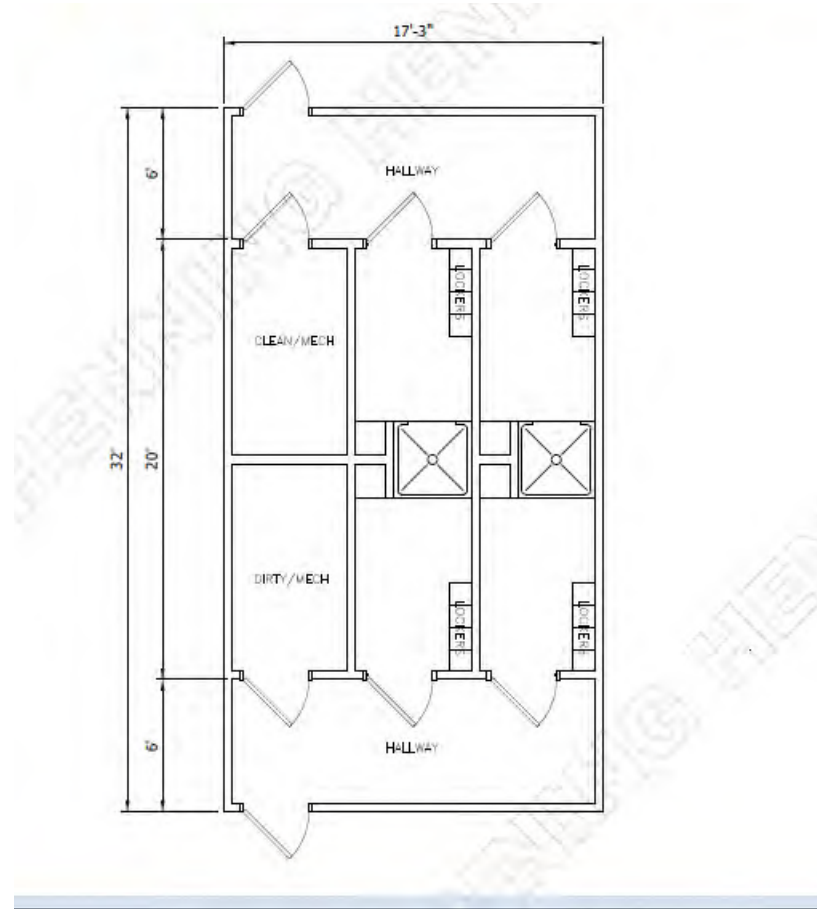
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LOS ENTRANCE AND HEAT TREATMENT



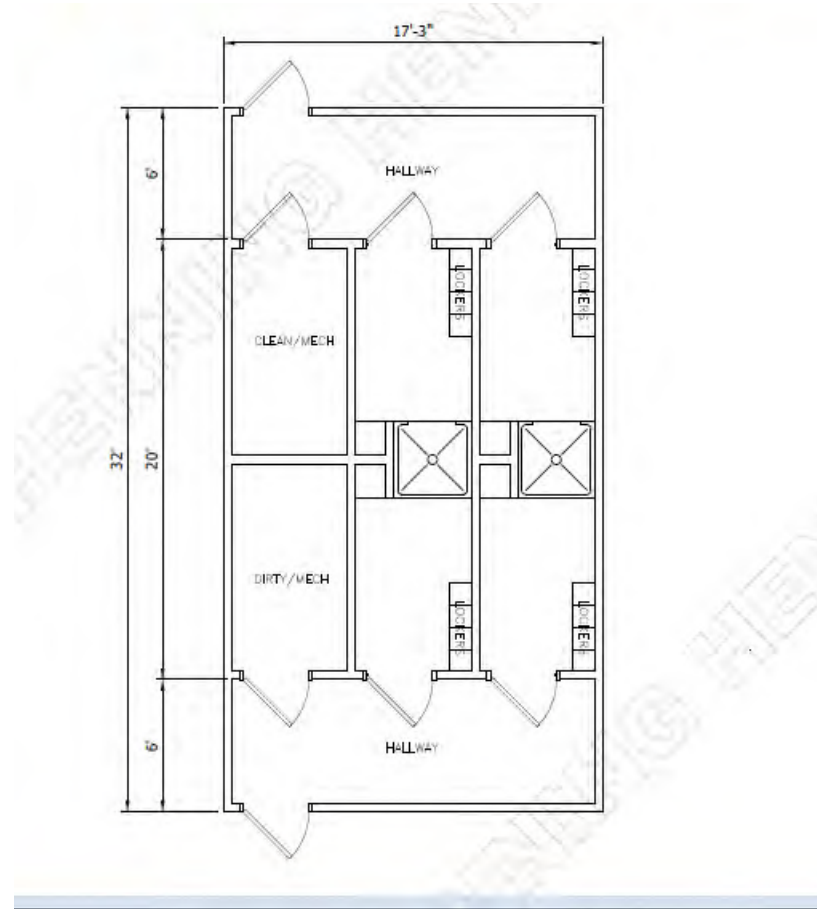
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EXAMPLE SHOWER ENTRY SMALL



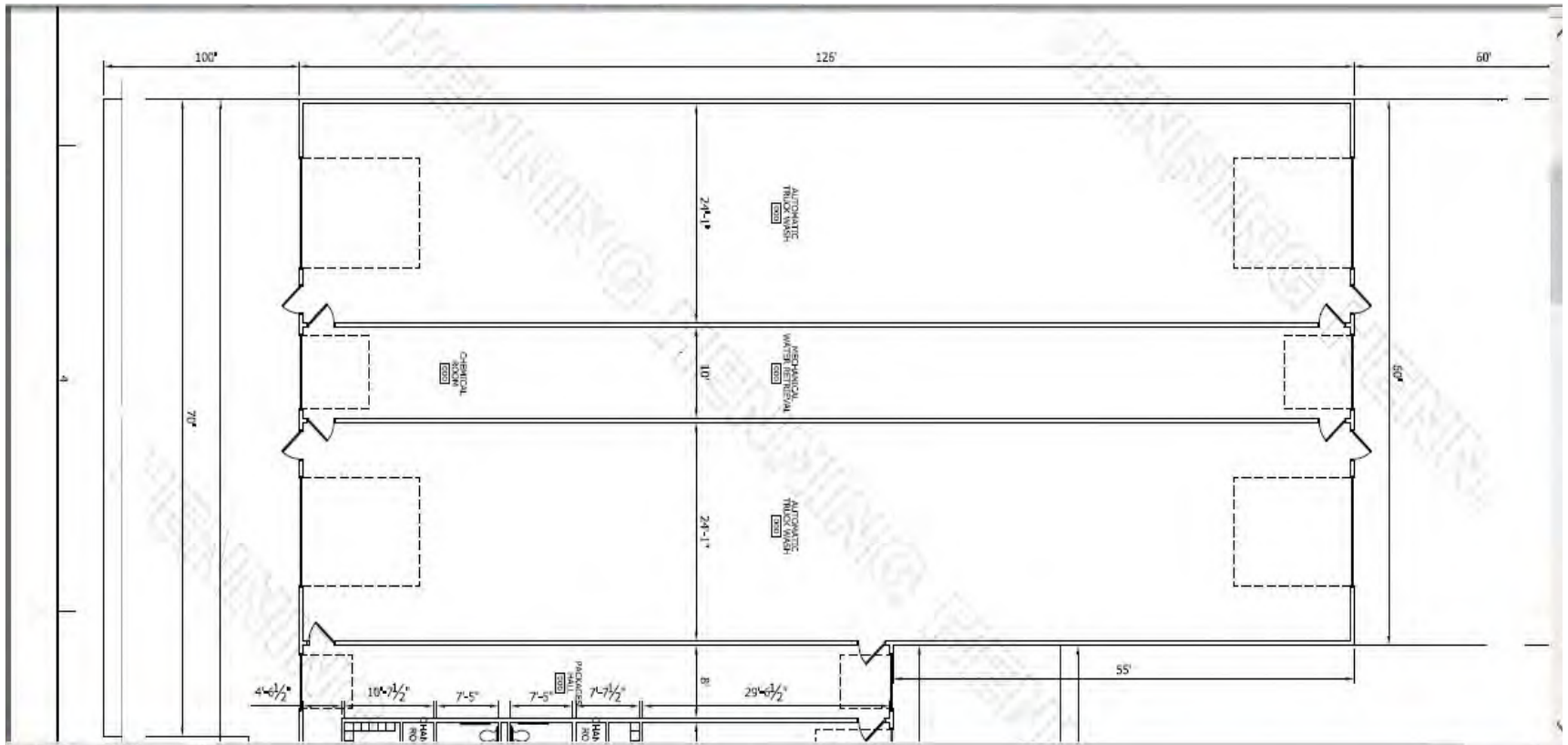
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EXAMPLE SHOWER ENTRY SMALL



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PERIMETER BUFFER ZONE ENTRY TRUCK WASH – ENLARGED VIEW



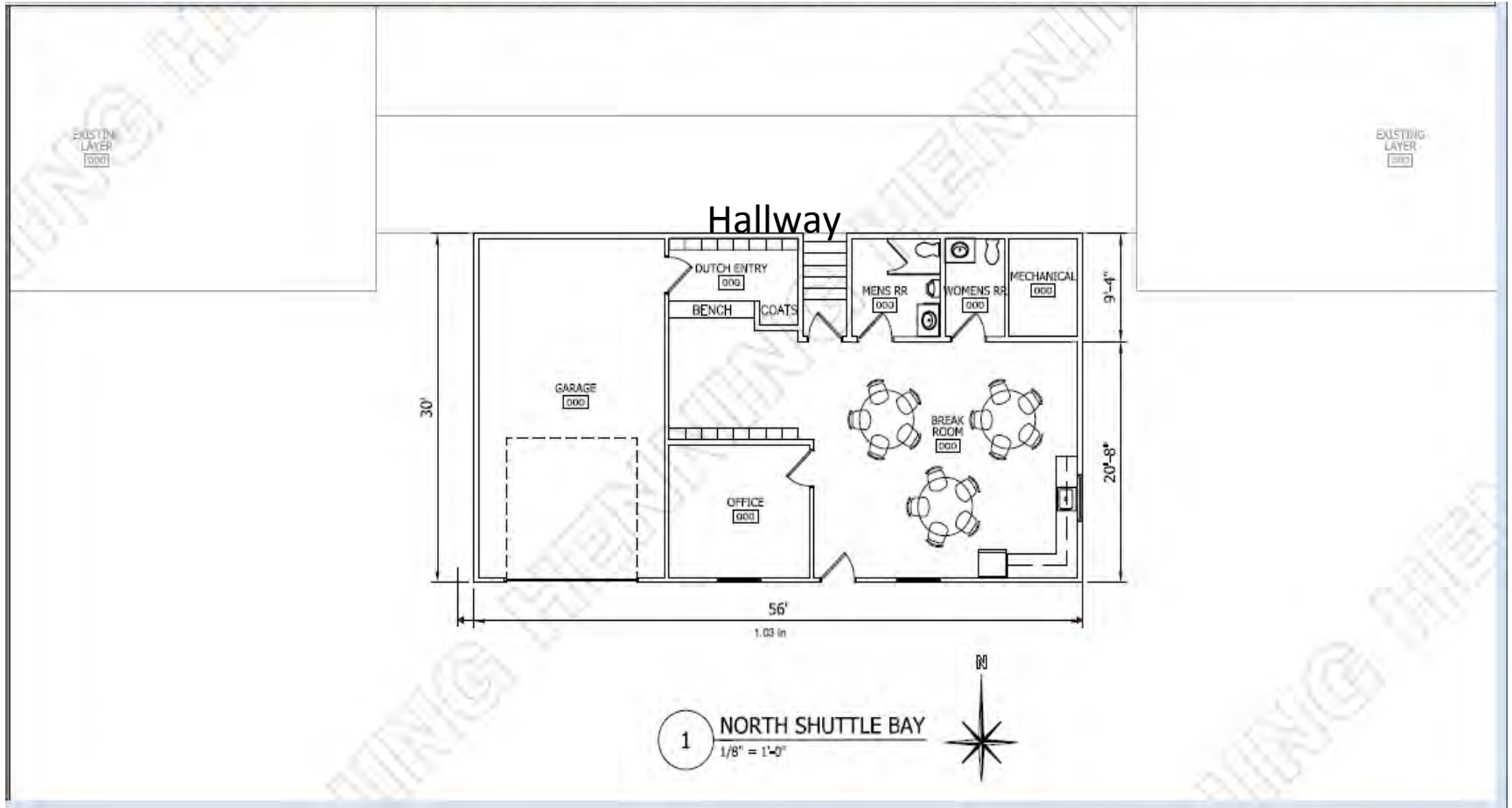
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LOS SHUTTLE ENTRY



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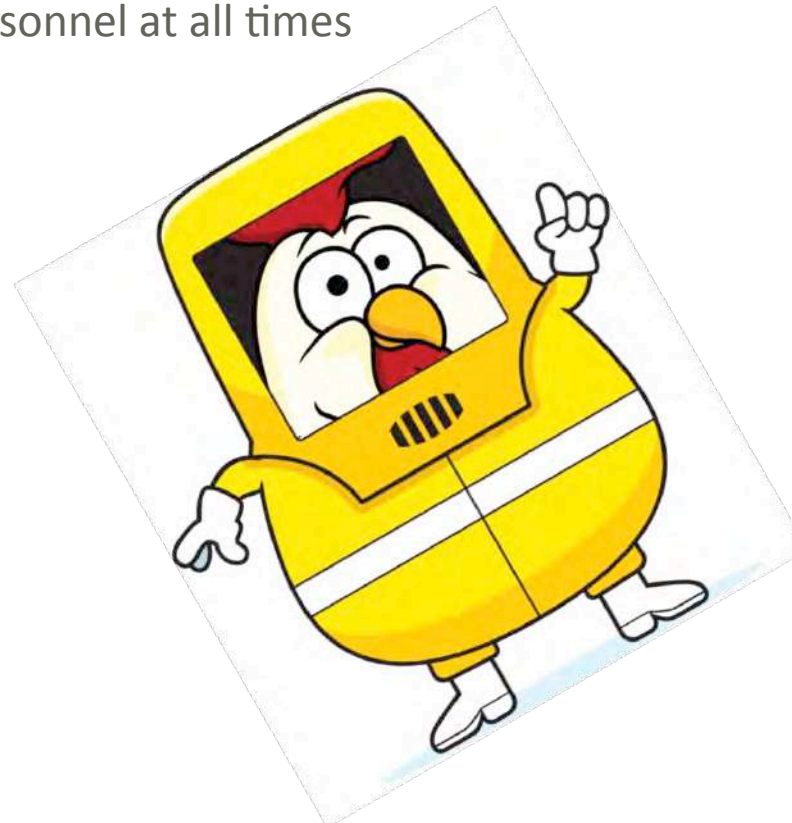
LOS SHUTTLE ENTRY WITH BREAK ROOM



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BIOSECURITY REVIEW

- Biosecurity is a critical component to preventing infection
- Biosecurity can be difficult because:
 - It is inconvenient for the individual
 - It affords no practical way to oversee all personnel at all times
 - The barrier is within the barn doors



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THANK YOU!

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