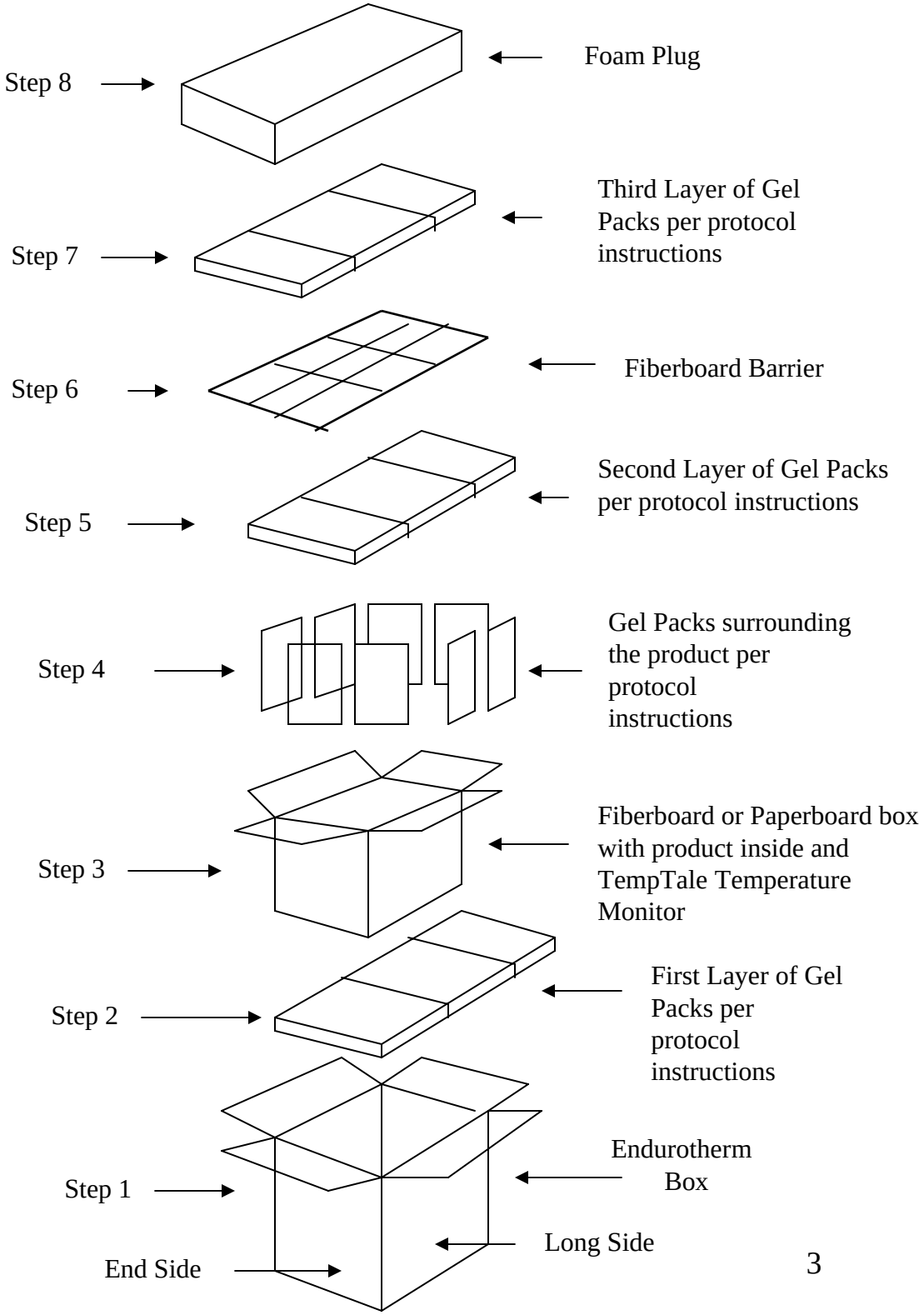
U.S. Army Medical Materiel Agency
(USAMMA)/Distribution Operations Center (DOC)

Packing Protocols for Temperature Sensitive Medical Products requiring Storage and Transportation Temperatures between 2°C - 8°C (36°F - 46°F).

Table of contents:

Endurotherm (ISC) Box Packing Steps

The packing or layering of the Endurotherm boxes is the same in principle for all three sizes (large, medium and small).



Cold Weather Packing Protocol

- Cold Weather Configuration is used when the ambient temperature at the **receiving site** is consistently below 55° F.
- Protocols are designed to keep temperature sensitive products requiring refrigeration temperatures between 2° C to 8° C within these temperature ranges during transportation, for up to 72 hours.
- 48 oz. and 24 oz. gel packs are used in all boxes for layering and void space filler.
- Coolant material must be placed in layers according to attached diagrams. Cold Weather configurations only use refrigerated gel packs. (See cold weather packing configuration diagrams.)

Cold Weather Packing Protocol
Procedures

The Cold Weather Packing Protocol is used whenever the ambient or outside temperature at the receiving site consistently remains below 55 degrees Fahrenheit. Begin the Cold Weather packing protocol by:

o Placing a layer of refrigerated gel packs at the bottom of the box.

o Next item will be the product.

o Place gel packs around the product's side(s) to fill in gap between product and the insulated walls of the box.

o This is followed by placing an activated TempTale electronic temperature monitor on top of the product, activate the TempTale temperature monitor by pressing and releasing the "start" button. Once the button is released, a "sunshine" icon will appear in the upper left corner of the LCD. This indicates that the monitor is running. Peel off the tape in the back of the TempTale and place it centered on top of the product.

o Follow with another layer of refrigerated gel packs.

o Above the second layer of refrigerated gel packs insert a fiberboard barrier.

o Add a final layer of refrigerated gel packs above the fiberboard barrier.

o Finally, insert the foam plug to seal the contents of the box.

Notes:

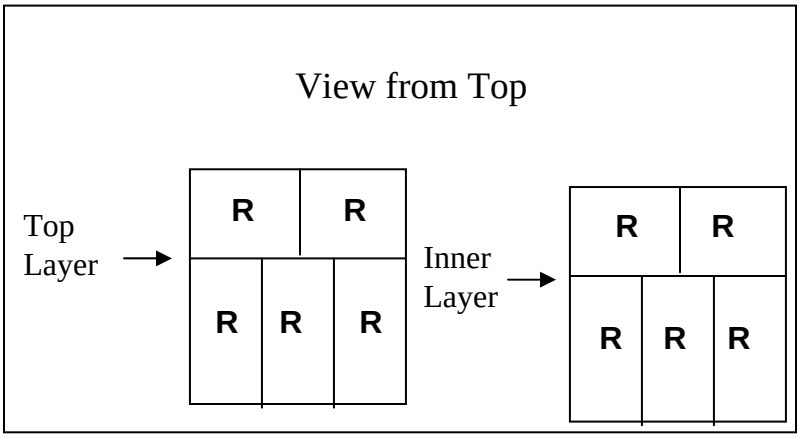
o Follow procedures according to each protocol diagram of ISC box used.

o To chill large amounts of gel packs at once, place gel pack boxes inside a refrigerator that has been set to 4° C for at least 30 days prior to use.

o To quickly chill small amounts of gel packs, place them in a single layer inside a refrigerator as explained above for at least 24 hours prior use.

Extra Large (ISC Box, E-327) – Cold Weather Packing Protocol Diagrams

Total amount of chilled Gel Packs = 27
Approximate Weight:
Max load = 145 lbs
Min load = 120 lbs



Layer 3:

5 Large Refrigerated Gel Packs (48 oz. each)

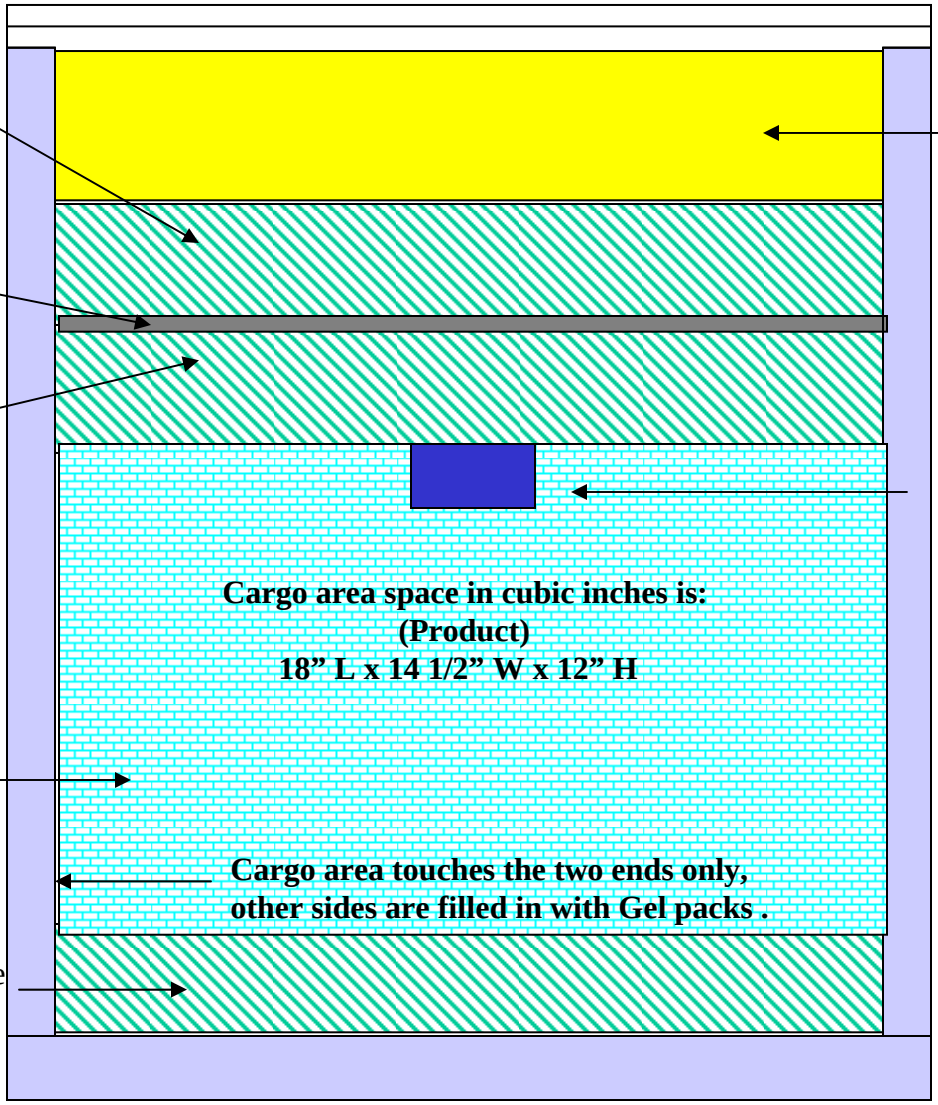
Fiberboard Barrier

Layer 2:

5 Large Refrigerated Gel Packs (48 oz. each)

Use a total of 12 Large Refrigerated Gel Packs (6 on each long side 48 oz. Each)

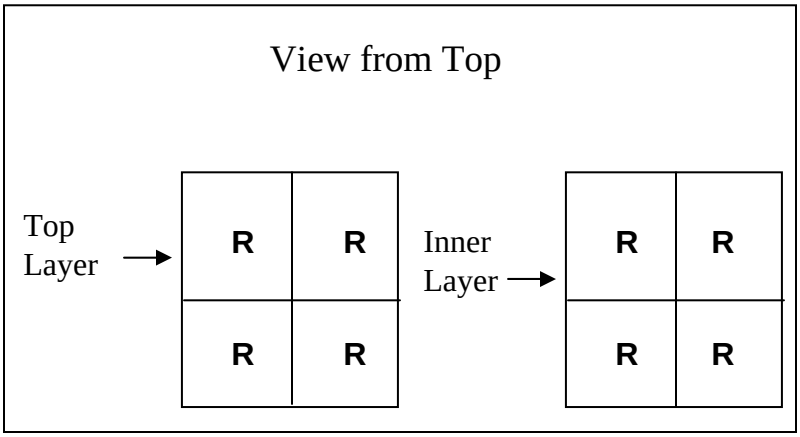
Layer 1: 5 Large Refrigerated Gel Packs (48 oz. each)



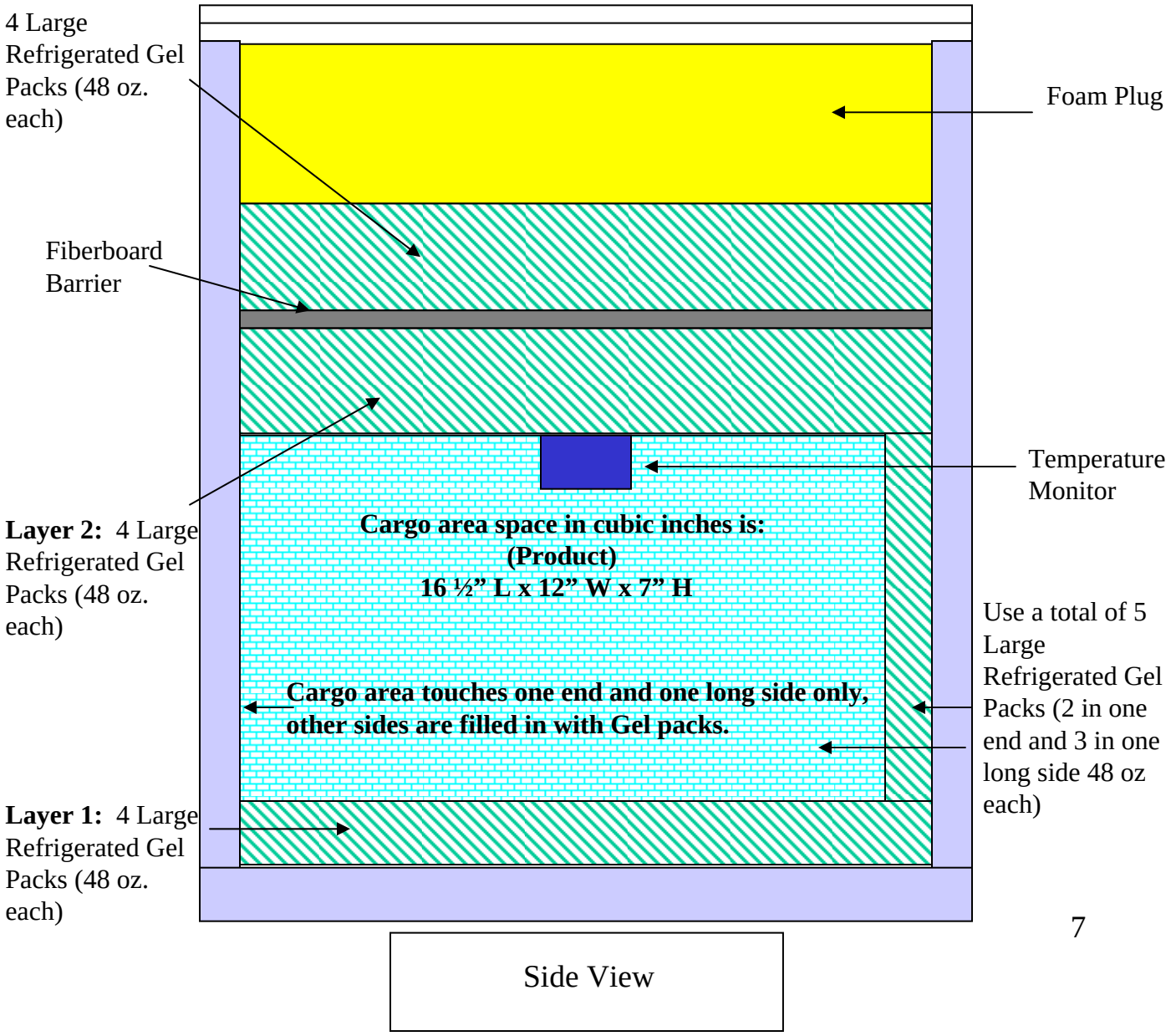
Side View

Large (ISC Box, E-186) – Cold Weather Packing Protocol Diagrams

Total amount of chilled Gel Packs = 17
Approximate Weight:
Max load = 75 lbs
Min load = 50 lbs



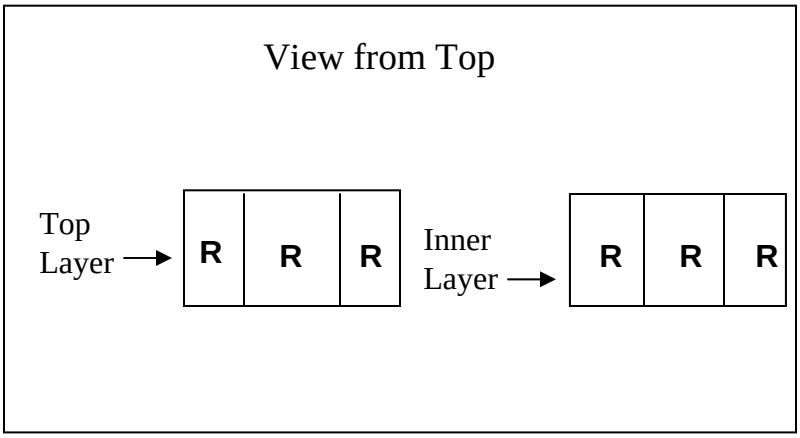
Layer 3:



Side View

Medium (ISC Box, E-65) – Cold Weather Packing Protocol Diagrams

Total amount of chilled Gel Packs = 13
Approximate Weight:
Max load = 40 lbs
Min load = 30 lbs



Layer 3:

3 Medium Refrigerated Gel Packs (24 oz. each)

Foam Plug

Fiberboard Barrier

Temperature Monitor

Layer 2:

3 Medium Refrigerated Gel Packs (24 oz. each)

Cargo area space in cubic inches is:
(Product)
12”L x 6 1/2” W x 6 1/2” H

Use a total of 4 Medium Gel Packs (2 in one long side and 2 in one end 24 oz. each)

Cargo area touches one end and one long side only, other sides are filled in with Gel Packs.

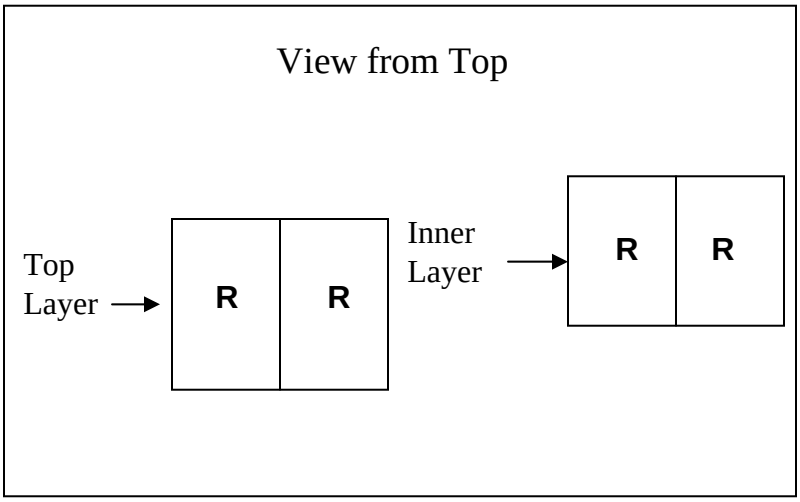
Layer 1:

3 Medium Refrigerated Gel Packs (24 oz. each)

Side View

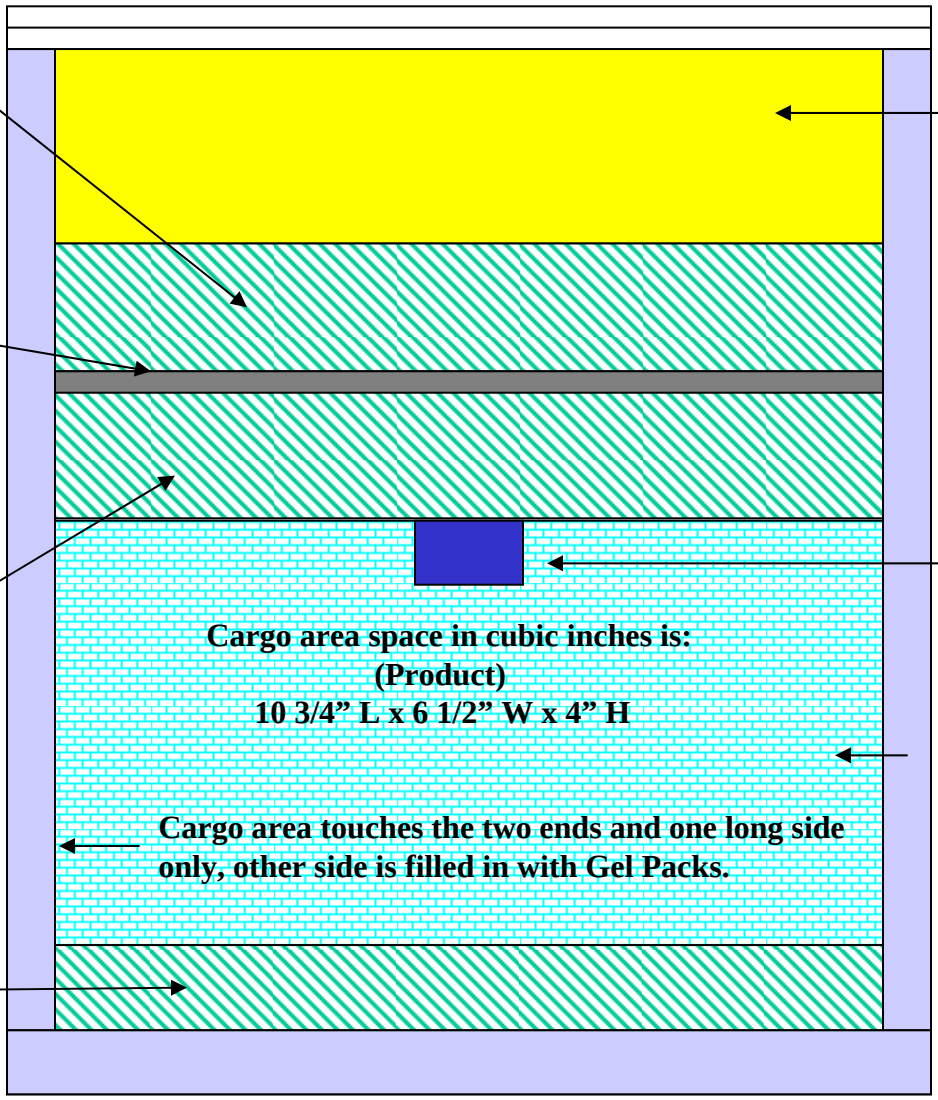
Small (ISC Box E-36-2) – Cold Weather Packing Protocol Diagrams

Total amount of chilled Gel Packs = 8
Approximate Weight:
Max load = 20 lbs
Min load = 15 lbs



Layer 3:

2 Medium Refrigerated Gel Packs (24 oz. each)



Layer 2:

2 Medium Refrigerated Gel Packs (24 oz. each)

2 Medium Refrigerated Gel Packs in one long side only (24 oz each).

Layer 1:

2 Medium Refrigerated Gel Packs (24 oz. each)

Side View

Moderate Weather Packing Protocol

- Moderate Weather Configuration is used when the ambient temperature **at the receiving site** is between 55° F and 77° F.
- Protocols are designed to keep temperature sensitive products requiring refrigeration temperatures between 2° C to 8° C within these temperature ranges during transportation, for up to 72 hours.
- 48 oz. and 24 oz. gel packs are used in all boxes for layering and fill in.
- Coolant material must be placed in layers according to attached diagrams. **Frozen gel packs are always farthest away from vaccine**.

Moderate Weather Packing Protocol
Procedures

The Moderate Weather Packing Protocol is used whenever the ambient or outside temperature at the receiving site is between 55 degrees Fahrenheit and 77 degrees Fahrenheit. Begin the Moderate Weather packing protocol by:

o Placing a layer of refrigerated gel packs at the bottom of the box.

o Next item will be the product.

o Place gel packs around the product's side(s) to fill in gap between product and the insulated walls of the box.

o This is followed by placing an activated TempTale electronic temperature monitor on top of the product, activate the TempTale temperature monitor by pressing and releasing the "start" button. Once the button is released, a "sunshine" icon will appear in the upper left corner of the LCD. This indicates that the monitor is running. Peel off the tape in the back of the TempTale and place it centered on top of the product.

o Follow with another layer of refrigerated gel packs.

o Above the second layer of refrigerated gel packs insert a fiberboard barrier.

o Add a final layer of a combination of refrigerated and frozen gel packs above the fiberboard barrier.

o Finally, insert the foam plug to seal the contents of the box.

Notes:

o Follow procedures according to each protocol diagram of ISC box used.

o To chill large amounts of gel packs at once, place gel pack boxes inside a refrigerator that has been set to 4° C for at least 30 days prior to use.

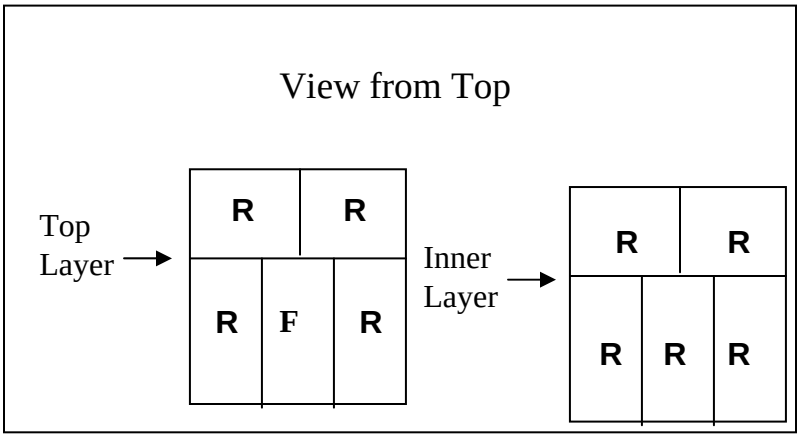
o To quickly chill small amounts of gel packs, place them in a single layer inside a refrigerator as explained above for at least 24 hours prior use.

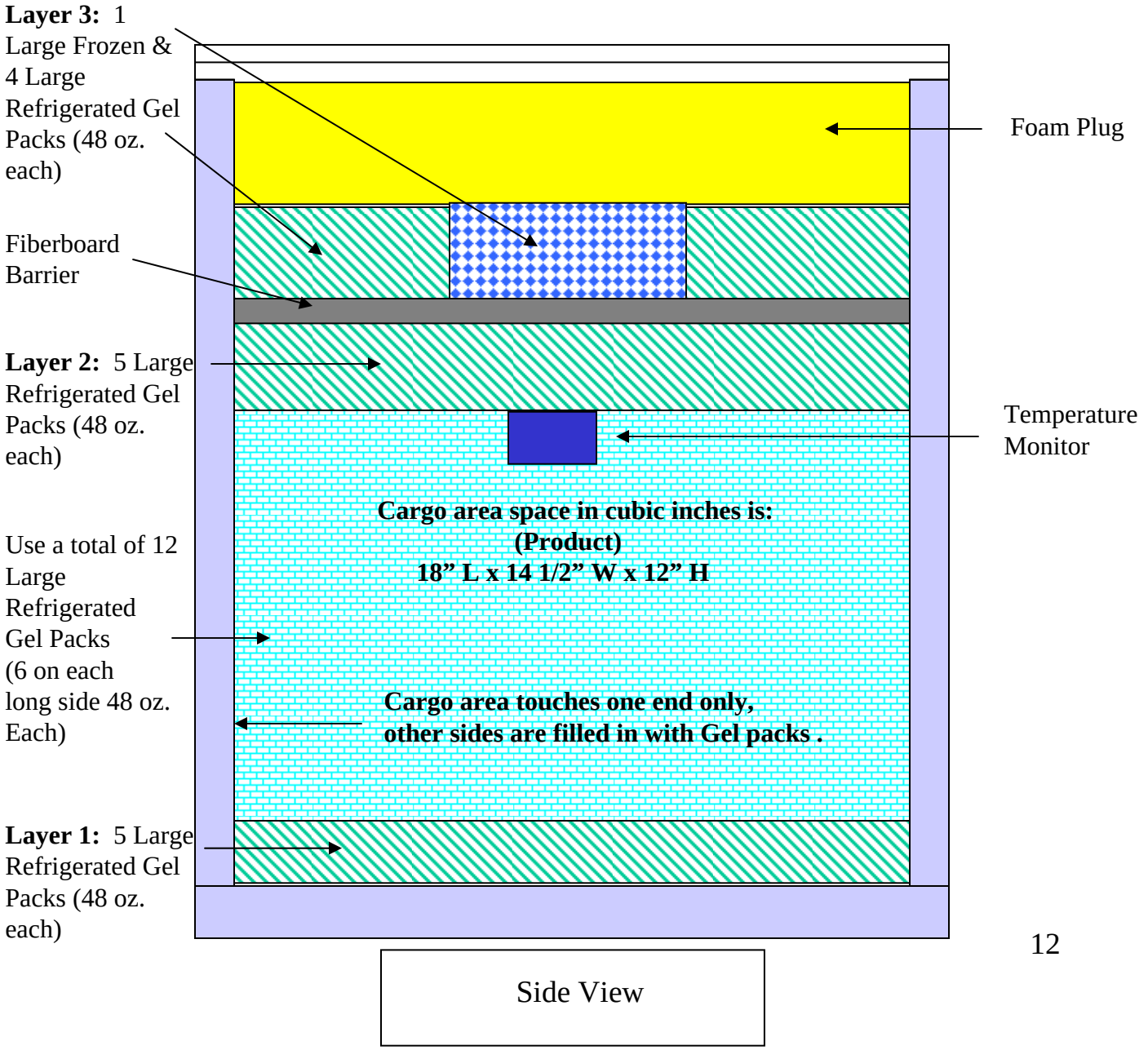
o To freeze large amounts of gel packs at once, place gel pack boxes inside a freezer that has been set to -17°C for at least 30 days prior use.

o To quickly freeze small amounts of gel packs, place them in a single layer inside a refrigerator as explained above for at least 24 hours prior to use (lay them flat to ensure they maintain their original shape once they are frozen) .

Extra Large (ISC Box, E-327) – Moderate Weather Packing Protocols Diagrams

Total amount of Gel Packs:
Chilled = 26
Frozen = 1
Approximate Weight:
Max load = 145 lbs
Min load = 120 lbs

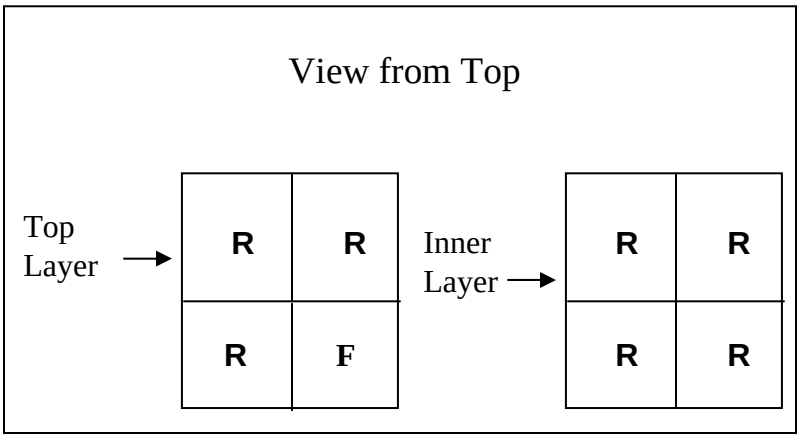


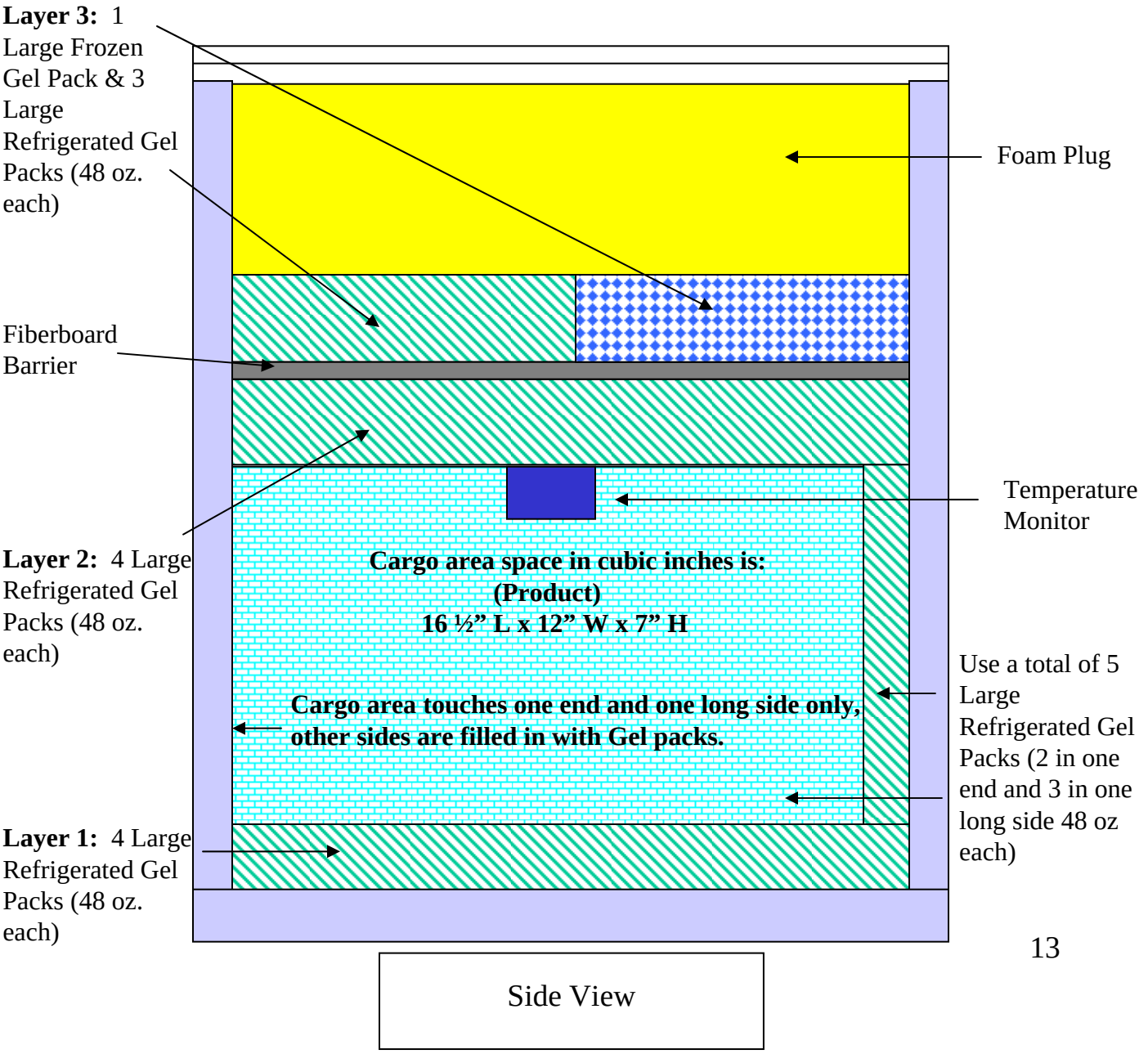


Side View

Large (ISC Box, E-186) – Moderate Weather Packing Protocols Diagrams

Total amount of Gel Packs:
Chilled = 16
Frozen = 1
Approximate Weight:
Max load = 75 lbs
Min load = 50 lbs

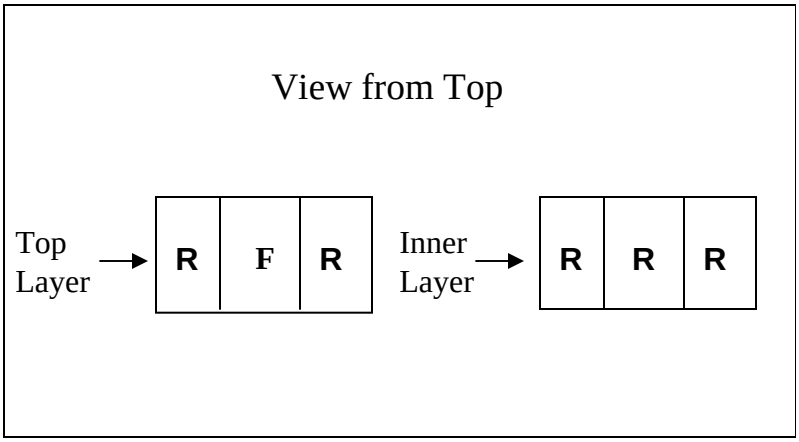




Side View

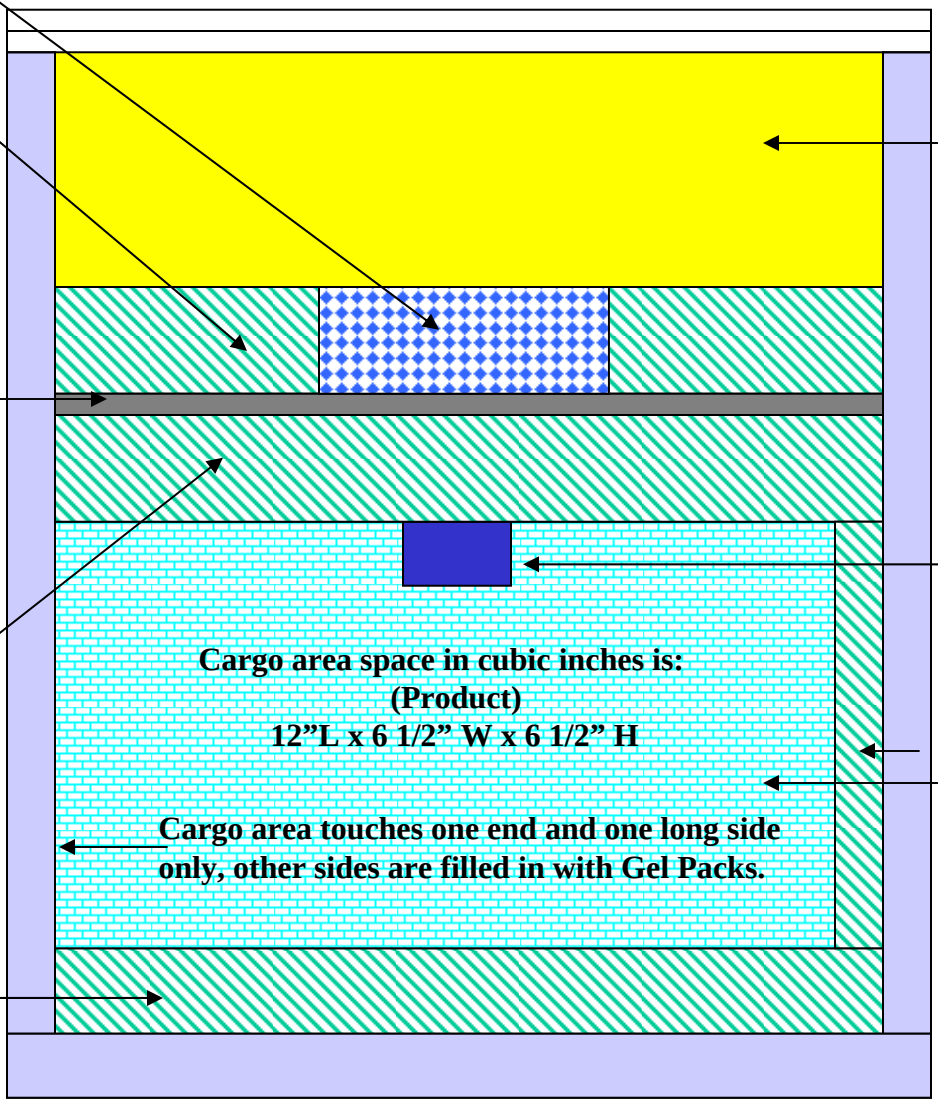
Medium (ISC Box, E-65) – Moderate Weather Packing Protocols Diagrams

Total amount of Gel Packs = 13
Chilled = 12
Frozen = 1
Approximate Weight:
Max load = 40 lbs
Min load = 30 lbs



Layer 3:

1 Medium Frozen Gel Pack & 2 Medium Refrigerated Gel Packs (24 oz. each)



Layer 2:

3 Medium Refrigerated Gel Packs (24 oz. each)

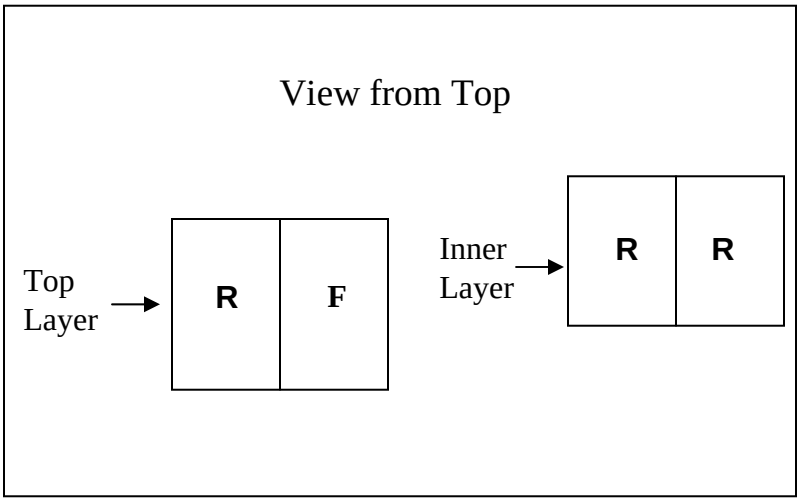
Use a total of 4 Medium Gel Packs (2 in one long side and 2 in one end 24 oz. each)

Layer 1: 3 Medium Refrigerated Gel Packs (24 oz. each)

Side View

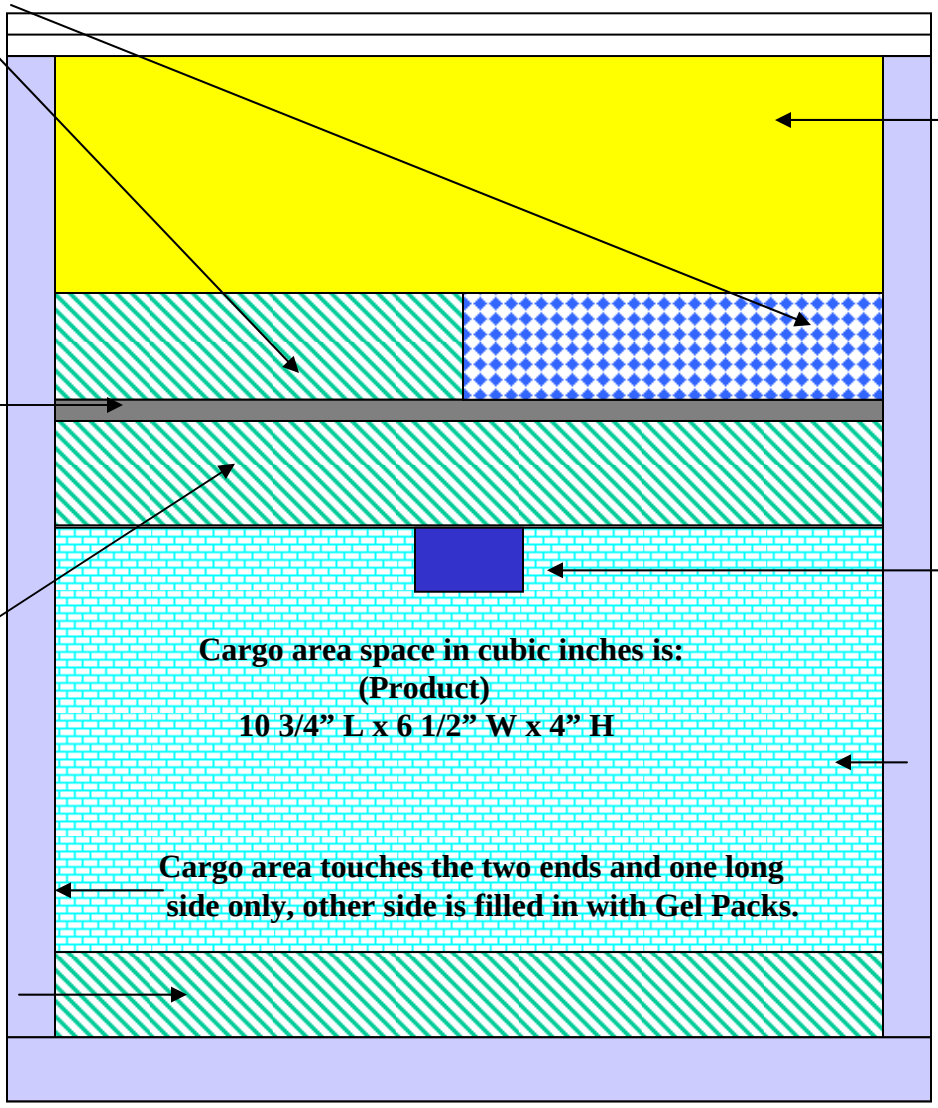
Small (ISC Box E-36-2) – Moderate Weather Packing Protocols Diagrams

Total amount of Gel Packs = 8
Chilled = 7
Frozen = 1
Approximate Weight:
Max load = 20 lbs
Min load = 15 lbs



Layer 3:

1 Medium Frozen Gel Pack & 1 Medium Refrigerated Gel Pack (24 oz. each)



Layer 2:

2 Medium Refrigerated Gel Packs (24 oz. each)

2 Medium Refrigerated Gel Packs in one long side only (24 oz each).

Layer 1:

2 Medium Refrigerated Gel Packs (24 oz. each)

Side View

Warm Weather Packing Protocol

- Warm Weather Configuration is used when the ambient temperature **at the receiving site** is consistently above 77° F.
- Protocols are designed to keep temperature sensitive products requiring refrigeration temperatures between 2° C to 8° C within these temperature ranges during transportation, for up to 72 hours.
- 48 oz. and 24 oz. gel packs are used in all boxes for layering and fill in.
- Coolant material must be placed in layers according to diagrams. **Frozen packs are always farthest away from vaccine**.

Warm Weather Packing Protocol
Procedures

The Warm Weather Packing Protocol is used whenever the ambient or outside temperature at the receiving site is consistently above 77 degrees Fahrenheit. Begin the Warm Weather packing protocol by:

o Placing a layer of refrigerated gel packs at the bottom of the box.

o Next item will be the product.

o Place gel packs around the product's side(s) to fill in gap between product and the insulated walls of the box.

o This is followed by placing an activated TempTale electronic temperature monitor on top of the product, activate the TempTale temperature monitor by pressing and releasing the "start" button. Once the button is released, a "sunshine" icon will appear in the upper left corner of the LCD. This indicates that the monitor is running. Peel off the tape in the back of the TempTale and place it centered on top of the product.

o Follow with another layer(s) of refrigerated gel packs.

o Above the second layer of refrigerated gel packs insert a fiberboard barrier.

o Add a final layer of a combination of refrigerated and frozen gel packs above the fiberboard barrier.

o Finally, insert the foam plug to seal the contents of the box.

Notes:

o Follow procedures according to each protocol diagram of ISC box used.

o To chill large amounts of gel packs at once, place gel pack boxes inside a refrigerator that has been set to 4° C for at least 30 days prior to use.

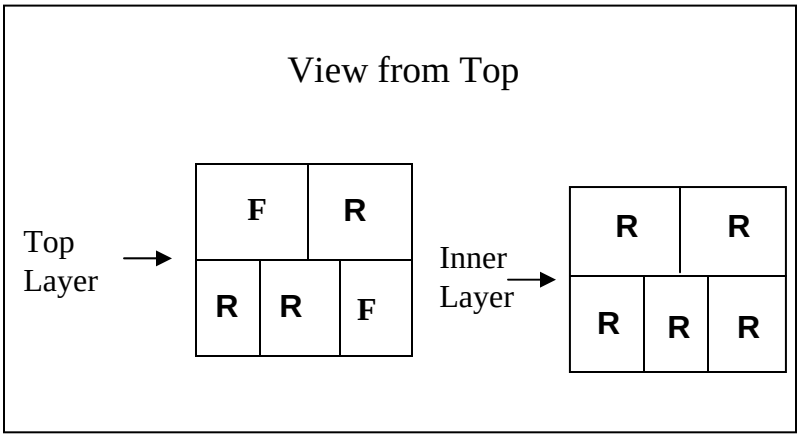
o To quickly chill small amounts of gel packs, place them in a single layer inside a refrigerator as explained above for at least 24 hours prior use.

o To freeze large amounts of gel packs at once, place gel pack boxes inside a freezer that has been set to -17°C for at least 30 days prior use.

o To quickly freeze small amounts of gel packs, place them in a single layer inside a refrigerator as explained above for at least 24 hours prior to use (lay them flat to ensure they maintain their original shape once they are frozen) .

Large (ISC Box, E-327) – Warm Weather Packing Protocol Diagrams

Total amount of Gel Packs = 27
Chilled = 25
Frozen = 2
Approximate Weight:
Max load = 145 lbs
Min load = 120 lbs



Layer 3:

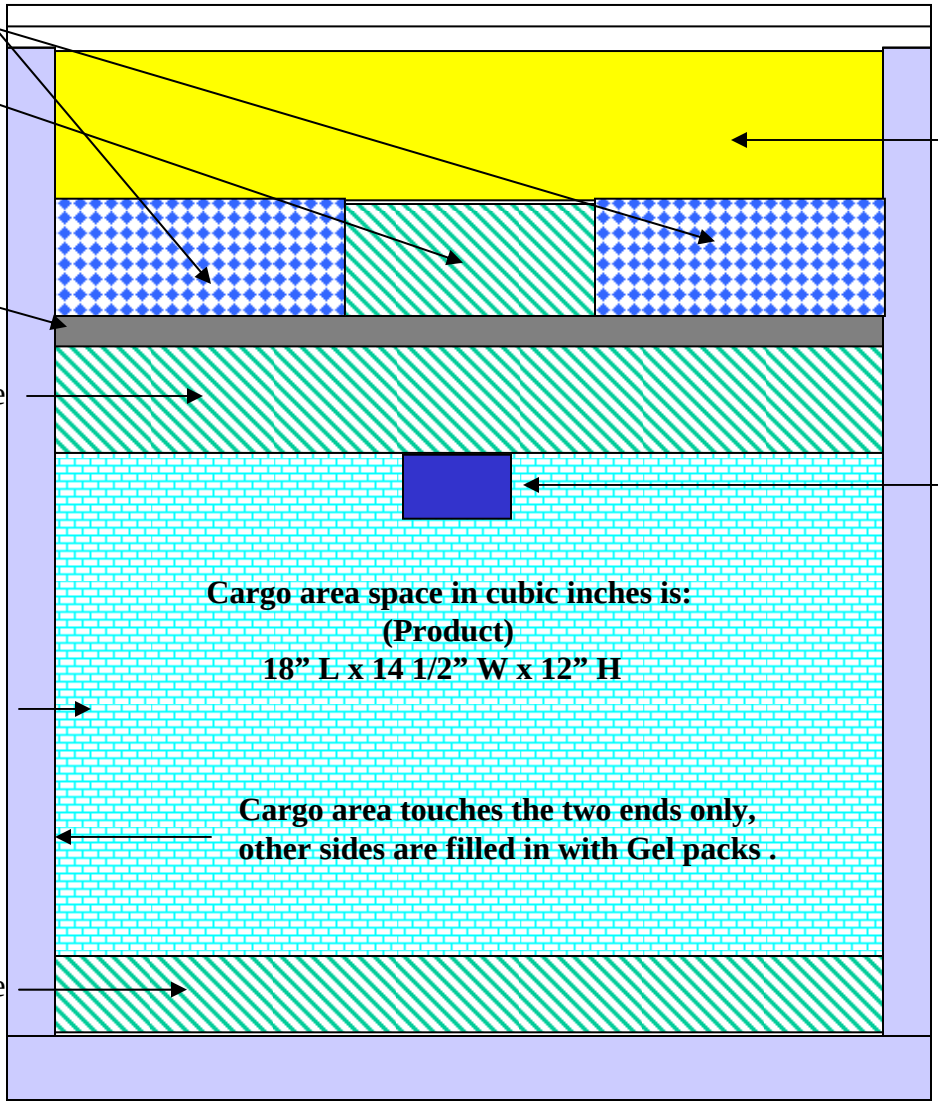
2 Large Frozen & 3 Large Refrigerated Gel Packs (48 oz. each)

Fiberboard Barrier

Layer 2: 5 Large Refrigerated Gel Packs (48 oz. each)

Use a total of 12 Large Refrigerated Gel Packs (6 on each long side 48 oz. Each)

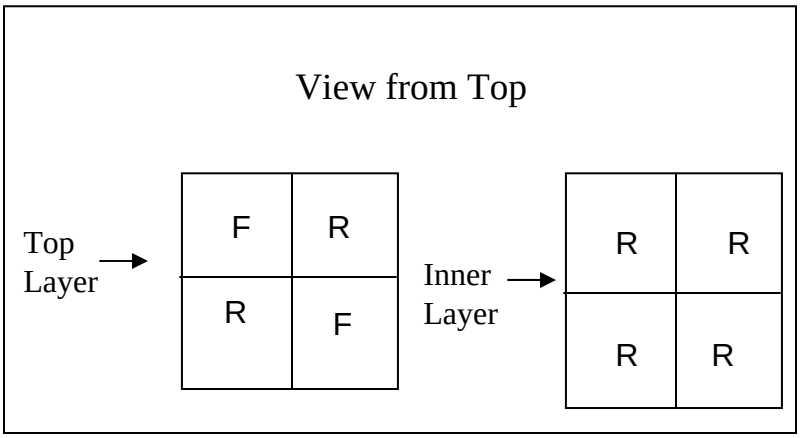
Layer 1: 5 Large Refrigerated Gel Packs (48 oz. each)



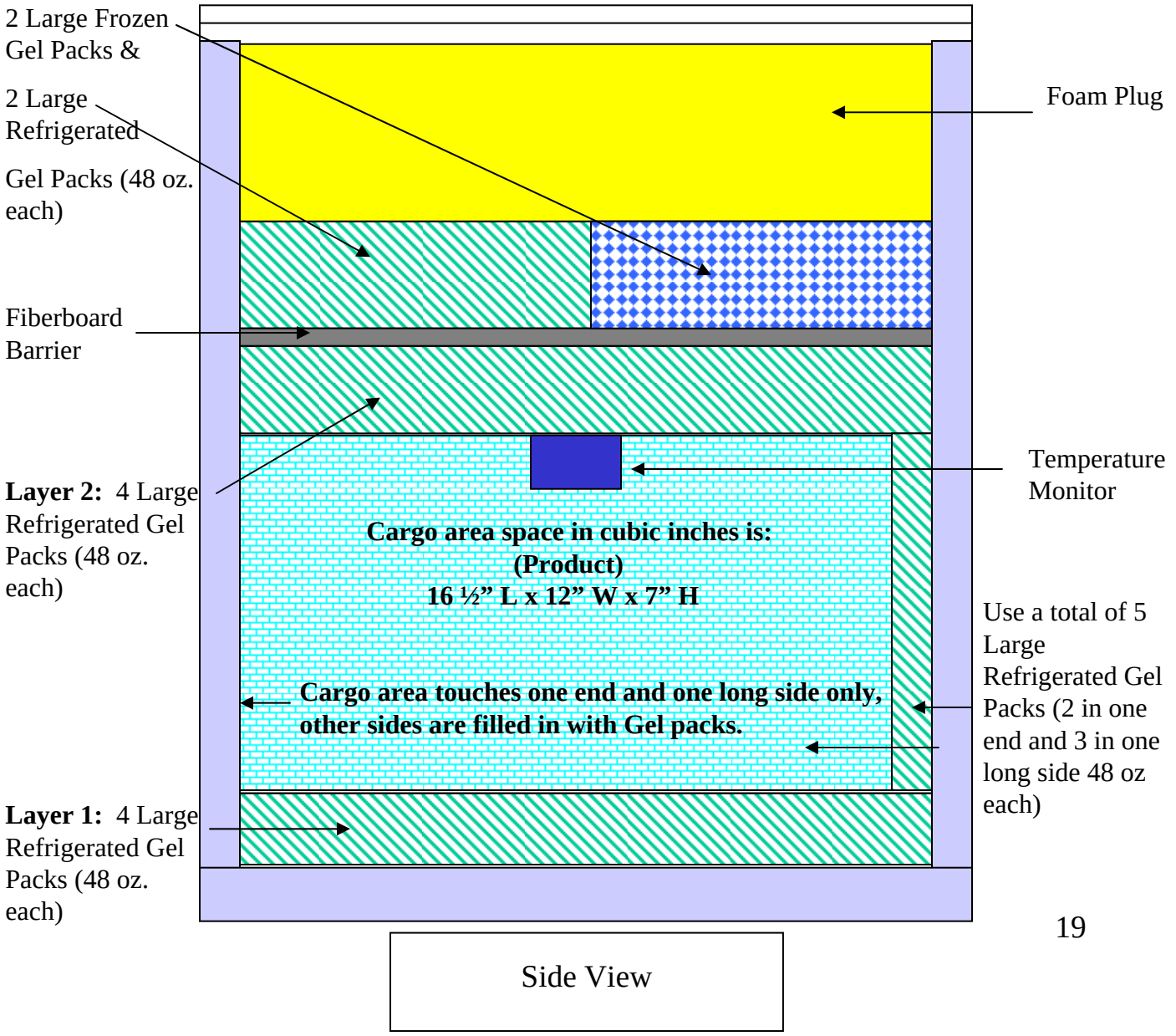
Side View

Large (ISC Box, E-186) – Warm Weather Packing Protocol Diagrams

Total amount of Gel Packs:
Chilled = 15
Frozen = 2
Approximate Weight:
Max load = 75 lbs
Min load = 50 lbs



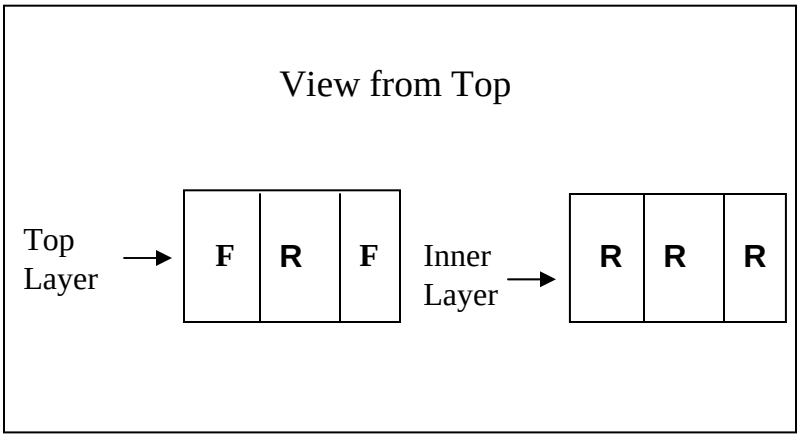
Layer 3:

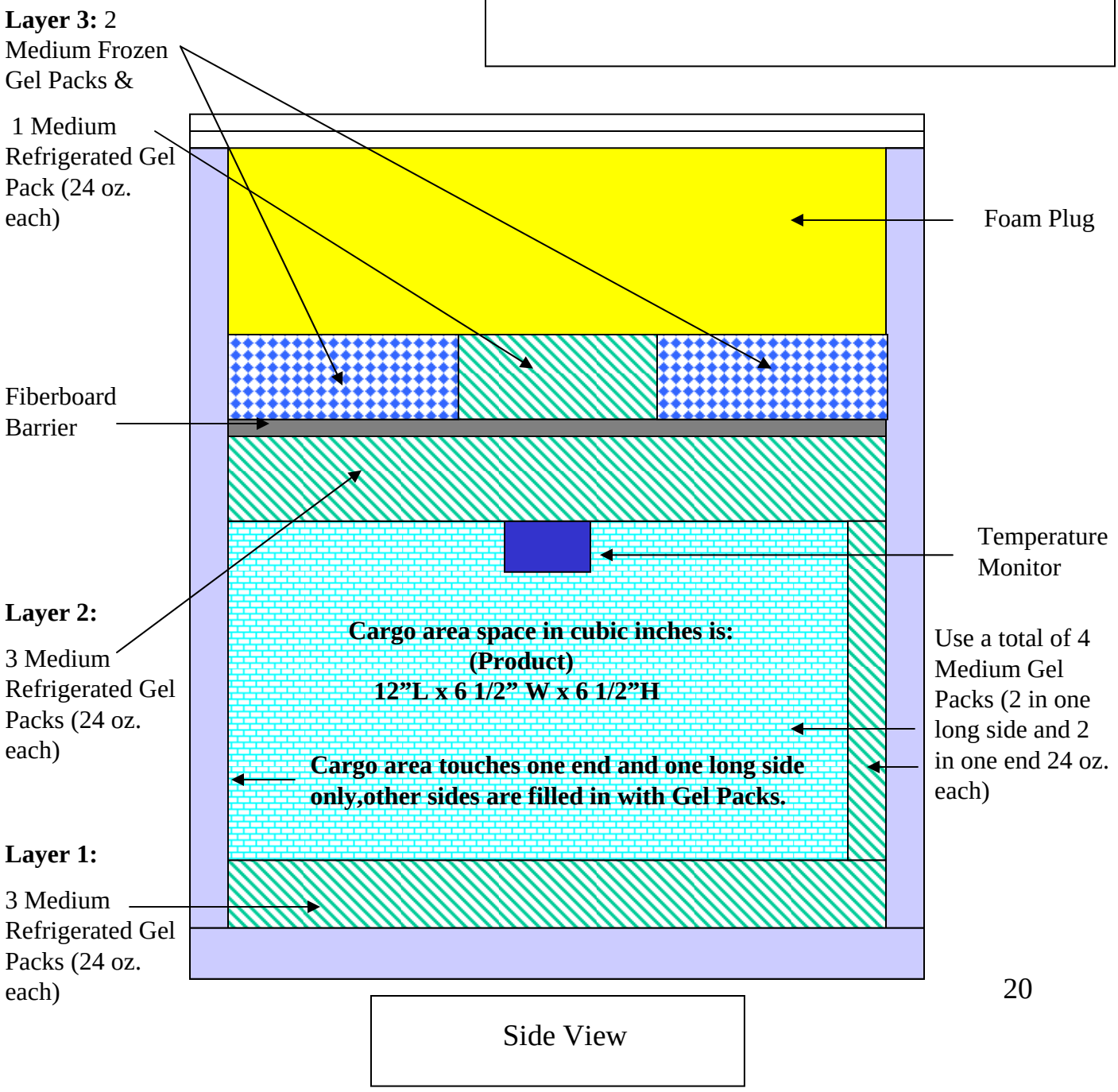


Side View

Medium (ISC Box, E-65) – Warm Weather Packing Protocol Diagrams

Total amount of Gel Packs = 13
Chilled = 11
Frozen = 2
Approximate Weight:
Max load = 40 lbs
Min load = 30 lbs

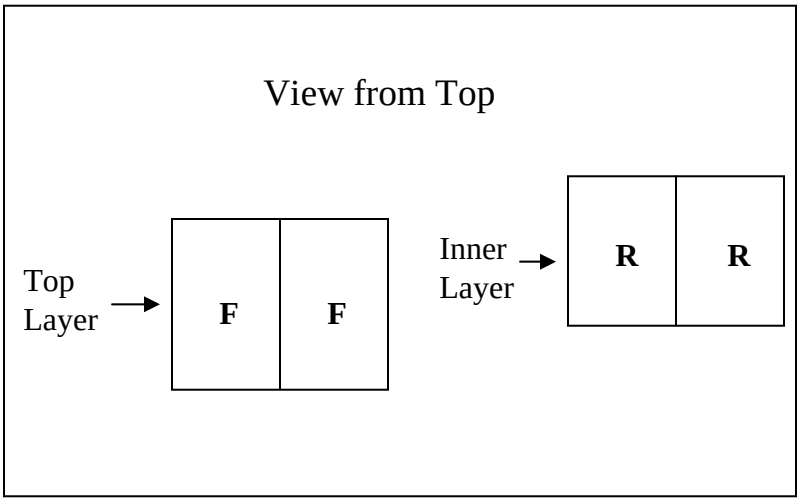




Side View

Small (ISC Box E-36-2) – Warm Weather Packing Protocol Diagrams

Total amount of Gel Packs = 8
Chilled = 6
Frozen = 2
Approximate Weight:
Max load = 20 lbs
Min load = 15 lbs



Layer 3:

2 Medium Frozen Gel Packs (24 oz. each)

Foam Plug

Fiberboard Cardboard Barrier

Layer 2:

2 Medium Refrigerated Gel Packs (24 oz. each)

Temperature Monitor

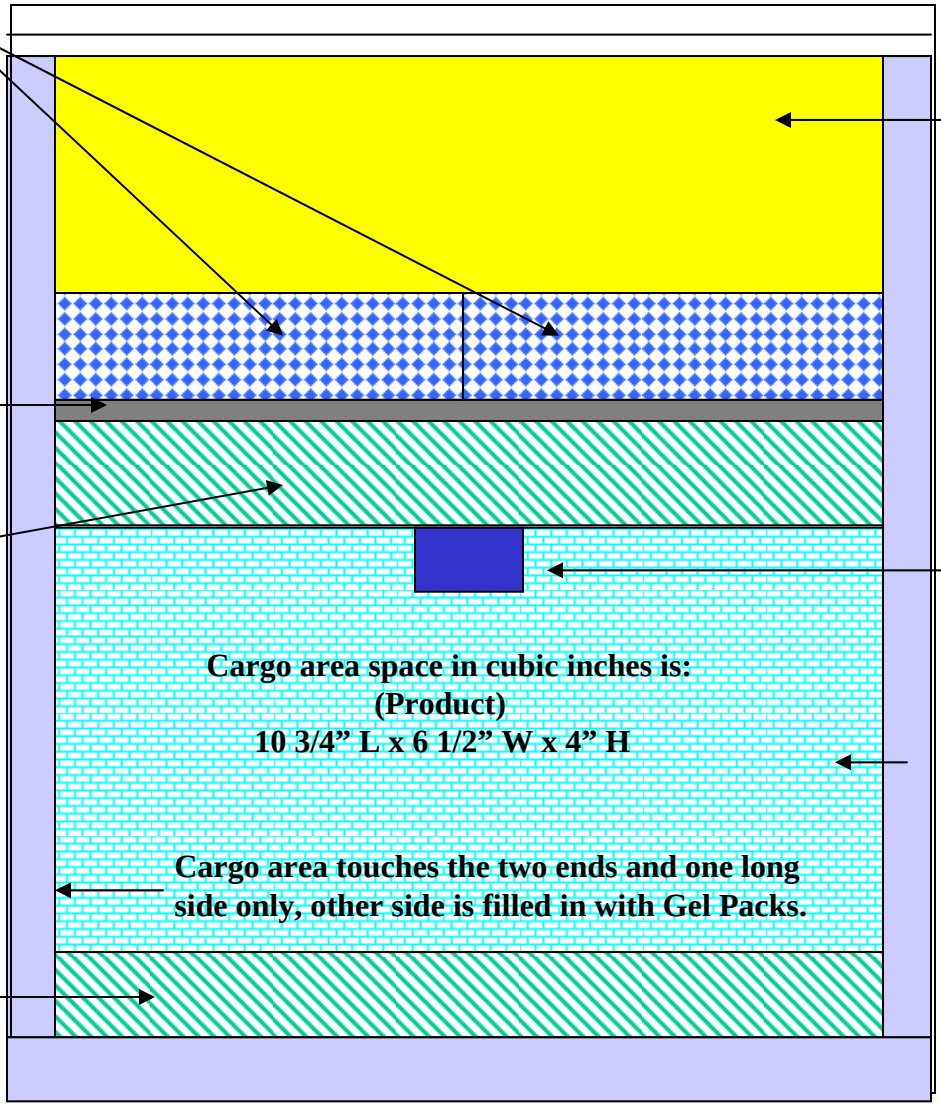
Cargo area space in cubic inches is:
(Product)
10 3/4" L x 6 1/2" W x 4" H

2 Medium Refrigerated Gel Packs in one long side only (24 oz each).

Cargo area touches the two ends and one long side only, other side is filled in with Gel Packs.

Layer 1:

2 Medium Refrigerated Gel Packs (24 oz. each)



Side View