JAPANESE DELIBERATE FIELD FORTIFICATIONS
SPECIAL TRANSLATION NUMBER 58

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20 MAY 1945
25 April 1945 - Serial No. 21530

From: Commander in Chief, U.S. Pacific Fleet and Pacific Ocean Areas.

Subject: CINCPAC-CINCPOA BULLETIN No. 94-45, Special Translation No. 58, Japanese Fortifications and Emplacements.

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This is the most comprehensive set of deliberate field fortification layouts and specifications that has been found to date. Some of the diagrams in this set have appeared in previous publications, supplemented by photographs, sketches, and comments. (In particular, see JICPOA Bulletin #71-44, Japanese Military Installations, 15 June 1944, with Supplement of 25 Sept. 1944. CINCPAC-CINCPOA Special Translation #59, Heavy DP Gun Emplacements, 100mm Type 98, 120mm Type 10 contains supplementary material. For detailed information supplementing the section on AA Installations, consult CINCPAC-CINCPOA Special Translation #62.)

Translations of captured fortification plans issued by area forces have also been published. (GILBERTS: JICPOA Item #3769, Standard Japanese Field Fortifications — Selected; MARSHALLS: JICPOA Items #8056, Permanent Fortifications, and #6365, Information On Obstacles Used To Impede Landing Craft and Amphibious Vehicles — 4th Fleet Planning Section; also JICPOA Items #7785, Special Fire Points, Covered Rifle and Gun Emplacements, and #7723, Notes on Beach Obstacles — 1st Amphibious Brigade; MARIANAS: JICPOA Item #9535F, Plans For Construction of Dummy Batteries On GUAM — MARIANAS Grp Hq.)

In addition ATIS has published similar reports covering the Southwest Pacific Areas, and Part I of the Japanese Infantry Field Fortification Manual (Enemy Publication #50, 23 Oct. 1943). Further information on fortifications may be found in published Defense Plans of OGASAWARA, PALAU, the MARIANAS, etc.

To a large degree all have been adaptations to local conditions of plans in this set, with emphasis on the use of on-the-spot materials. The Japanese, in fortifying their more remote territories, lacked materials to construct the elaborate installations called for in some of these plans. However, reconnaissance photographs and the experience of recent operations would seem to indicate that we shall, in the homeland, encounter deliberate fortifications which are up to official specifications. Cut-and-cover fortifications will be dug deeper than indicated herein; and/or their walls and ceilings will be thicker, and/or bursting layers provided. Specifications captured on OKINAWA call for walls and ceilings 1.3 — 3.5 meters thick for MG Pillboxes. (Casemates of Rapid-fire guns, 2 — 3.5 meters for Regimental or Mountain Guns, 1.3 — 2.2 meters; Company Command Posts, 2 meters; Artillery Observation Posts, 1.5 meters; gun emplacements for Rifles and MG, 1.3 meters.) Cave-type construction, with either open-cut or horizontal shaft, will undoubtedly be substituted whenever possible.
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* * * * *
CINCPAC-CINCPOA SPECIAL TRANSLATION NO. 58

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RIFLE

PLAN CROSS SECTION

DUAL PURPOSE O.P. AND LMG
(WITH LIGHT COVER)

PLAN CROSS SECTION

SECTION A-A

Communication trench

Fire and observation ports

Entrance

Passageway

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I - OPEN EMPLACEMENTS

UNCLASSIFIED

SECTION A-A

UNCLASSIFIED
I - OPEN EMPLOYMENTS

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GRENADE THROWER

PLAN CROSS SECTION

SECTION A-A

Communication trench
Notes:

1. In this pillbox the 11th year type, Type 96, or Type 99 LMG equipped with telescopic sights may be used.
2. In the detailed diagram of the fire port the reinforcement is omitted.
3. Disposition of foundation and entrances should take into account factors of local terrain and soil.

List of Required Materials

<table>
<thead>
<tr>
<th>Material</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Concrete</td>
<td>55 cu m</td>
</tr>
<tr>
<td>Steel reinforcement</td>
<td>1 ton</td>
</tr>
<tr>
<td>Forms</td>
<td></td>
</tr>
<tr>
<td>inner</td>
<td>30 sq m</td>
</tr>
<tr>
<td>outer</td>
<td>25 sq m</td>
</tr>
<tr>
<td>Fire port door</td>
<td>1</td>
</tr>
<tr>
<td>Drainage unit</td>
<td>1</td>
</tr>
</tbody>
</table>
II - PILLBOXES

FOR ONE HMG - TYPE A

PLAN CROSS SECTION
(Amount of concrete: about 35 cu m)

Ammo

Firing room

Ready room and passageway

Air vent

Single wooden door

Reinforcing rods: 16mm dia., c-c .20
II - PILLBOXES

FOR ONE HMG - TYPE A (Continued)

SECTION A-A

Reinforcing rods: 16mm dia., c-c .20
II - PILLOWS

FOR ONE HMG - TYPE A (Continued)

SECTION B-B

Air vent (steel cover attached)

FOR ONE HMG - TYPE B

PLAN CROSS SECTION

(Amount of concrete: about 20 cu m)

Single wooden door

Reinforcing rods: 16mm dia., c-c .20
FOR ONE HMG - TYPE C

PLAN CROSS SECTION

(Amount of concrete:
about 29 cu m)

Note: Thickness of concrete protective covering is 30-50cm.

Reinforcing rods: 16mm dia., c-c .20
II - PILLBOXES

FOR ONE HMG (FLANK DEFENSE)

PLAN CROSS SECTION

- Firing room
- Bench - below
- B Steel door
- Air intake
- Ready room
- Bunk - above
- Steel door
- 0.05 Conduit for light and communication wires
- Double wooden door (exterior faced with galvanized iron)
- Air vent 0.20 x 0.50
- Folding bench
- Concrete drain
- Hand-operated fan
- Covered drain

Reinforcing rods: 16mm dia., c-c 0.20
16mm dia., c-c 0.40
II - PILLOMBES

FOR ONE HMG (FLANK DEFENSE) (Continued)

SECTION A-A

Double wooden door (exterior faced with galvanized iron)

Ready room

Precast concrete slab

Waterproof mortaring

Firing room

Bunk

Platform for hand-operated fan

Conduit for light and communication wires - .05

Ammo

Bench

Fan room

Reinforcing rods: 16mm dia., c-c .20
16mm dia., c-c .40
II - PILLBOXES

SECTION B-B

Reinforcement:
- 16mm dia., c-c .20
- 16mm dia., c-c .40

Notes:
1. This diagram shows the type of pillbox used for Type 92 HMG.
2. The detail of the fire port is shown in a separate diagram.
3. The fire port wall is camouflaged. If necessary, reduce the amount of area exposed by using slabs of pre-cast concrete; such slabs should not become obstructions to firing.

List of Required Materials

<table>
<thead>
<tr>
<th>Material</th>
<th>Quantity</th>
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</thead>
<tbody>
<tr>
<td>Concrete</td>
<td>110 cu m</td>
</tr>
<tr>
<td>Steel Reinforcement</td>
<td>25 tons</td>
</tr>
<tr>
<td>Inner Forms</td>
<td>84 sq m</td>
</tr>
<tr>
<td>Outer Forms</td>
<td>120 sq m</td>
</tr>
<tr>
<td>Broken Stone</td>
<td>14 cu m</td>
</tr>
<tr>
<td>Fire port door</td>
<td>1</td>
</tr>
<tr>
<td>Steel door, entrance</td>
<td>1</td>
</tr>
<tr>
<td>Drain covers</td>
<td>2</td>
</tr>
<tr>
<td>Intake</td>
<td>1</td>
</tr>
<tr>
<td>Exhaust</td>
<td>1</td>
</tr>
<tr>
<td>Bunks</td>
<td>1 man</td>
</tr>
<tr>
<td>Benches</td>
<td>2</td>
</tr>
<tr>
<td>Drainage unit</td>
<td>1</td>
</tr>
</tbody>
</table>
II - PILLBOXES

FOR ONE HEAVY (OR LIGHT) MG (FLANK DEFENSE)

PLAN CROSS SECTION

Wooden support
Racks for tools and weapons
Air intake
Hand-operated fan
Concrete drain
Air vent
Covered drain
Removable handrail
Conduit for light and communication wires -(5cm)
Steel door
Drainage slope
Double wooden door (exterior faced with galvanized iron)

Reinforcing rods: 16mm dia., c-c .20
16mm dia., c-c .40
II - PILPBOXES

FOR ONE HEAVY (OR LIGHT) MG (FLANK DEFENSE) (Continued)

SECTION A-A

Reinforcing rods: 16mm dia., c-c .20
16mm dia., c-c .40
II - PILLBOXES

For one heavy (or light) mg (flank defense) (continued)

SECTION B-B

Precaust concrete slab
Removable handrail
Waterproof mortaring
Camouflage net

Double wooden door (exterior faced with galvanised iron)

Conduit for light and communication wires (5cm)

Covered drain

Provide for drainage around entrance by sloping trench sufficiently

List of Required Materials

<table>
<thead>
<tr>
<th>Materials</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Concrete</td>
<td>60 cu m</td>
</tr>
<tr>
<td>Steel reinforcement</td>
<td>1.7 ton</td>
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<tr>
<td>Inner forms</td>
<td>55 sq m</td>
</tr>
<tr>
<td>Outer forms</td>
<td>85 sq m</td>
</tr>
<tr>
<td>Broken stone</td>
<td>12 cu m</td>
</tr>
<tr>
<td>Reinforcing rods</td>
<td>16 mm dia., o-c 0.20</td>
</tr>
<tr>
<td></td>
<td>16 mm dia., o-c 0.40</td>
</tr>
</tbody>
</table>

Accessories

<table>
<thead>
<tr>
<th>Accessories</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fire port door</td>
<td>1</td>
</tr>
<tr>
<td>Entrance door, steel</td>
<td>1</td>
</tr>
<tr>
<td>Entrance door, wooden</td>
<td>1</td>
</tr>
<tr>
<td>Exhaust</td>
<td>1</td>
</tr>
<tr>
<td>Intake</td>
<td>1</td>
</tr>
<tr>
<td>Drainage unit</td>
<td>1</td>
</tr>
</tbody>
</table>

-15-
II - PILLBOXES

FOR TWO HMG (FLANK DEFENSE) (Continued)

SECTION A-A

Steel cover
Observation port
Communication room - lower
Observation room - upper
Camouflage net
Ready room
Firing room
Double-decker bunks
Movable bench
Reinforcing rods: 16mm dia., c-c .20

If necessary build obstacle ditch here
II - PILLBOXES

FOR TWO HMG (FLANK DEFENSE) (Continued)

Notes:

1. This diagram shows a pillbox for Type 92 HMG.

2. The detail of the fire port and observation room is on another diagram.

3. Conceal fire port wall with a camouflage net. If circumstances warrant, reduce the amount of exposed surface by using a precast concrete slab. Such a protective cover should be easily removable and should present no hindrance to firing even if demolished.

4. The disposition of foundation, drainage, and entrances should take into account factors of local terrain and soil.

List of Required Materials

Concrete ............165 cu m
Steel Reinforcement...45 tons
Forms
  Inner ..........190 sq m
  Outer ..........165 sq m
Broken Stone ........25 cu m

Accessories

Entrance doors, steel....... 4
Entrance doors, wooden..... 1
Exhausts ..................... 2
Intakes ........................ 1
Steel cover ................. 1
Fire port door, steel....... 1
Bunks ......................... 4
Chair .......................... 1
Bench .......................... 1
Metal ladder ............... 1
Drainage unit ............. 1
PLAN CROSS SECTION

Conglomerate Rock (cut-off)

Ammo

Obstacle ditch

Hand-operated fan

Opening for small periscope

Observation and communications room

Double-decker bunks

Ready room

Fire port for rifle and hand grenades

Wooden door (exterior faced with galvanized iron) to act as baffle

Conduit for light wires

Communication trench

Reinforcing rods: 16mm dia., c-c .20

(TN: During combat, when footboards are removed, pit serves to neutralize effect of grenades and as an obstacle to troops trying to rush the passageway.)
II - PILLBOXES

FOR HMG (FLANK DEFENSE) 2-WAY (Continued)

SECTION A-A

Conglomerate rock (cut-off)

Small periscope

Observation and rifle post

Communication trench

Observation and communications room

Pit

Passageway

Bunks

Ready room

Fire port

Removable footboards

Reinforcing rods: 16mm dia., c-c .20
II - PILLBOXES

FOR HMG (PLANK DEFENSE) 2-75MM (Continued)

SECTION B-B

Observation and rifle post

Firing room

Heavy steel reinforcement

Fire port for rifles and hand grenades

Obstacle ditch

Removable footboards

Pit

Storage

Reinforcing rods: 16mm dia., c-c .20
II - PILBOXES

FOR HMG (FLANK DEFENSE) 2-WAY (Continued)

Notes:

1. This diagram shows a type of pillbox for Type 92 HMG.

2. Details of fire port are on a separate diagram.

3. If necessary, the Observation Room and Firing Room are connected by a speaking tube.

4. Disposition of foundation, drainage, and entrances should take into account factors of local terrain and soil.

<table>
<thead>
<tr>
<th>List of Required Materials</th>
<th>Accessories</th>
</tr>
</thead>
<tbody>
<tr>
<td>Concrete</td>
<td>Entrance doors, steel</td>
</tr>
<tr>
<td>265 cu m</td>
<td>3</td>
</tr>
<tr>
<td>Steel Reinforcement</td>
<td>Entrance doors, wooden</td>
</tr>
<tr>
<td>12 tons</td>
<td>3</td>
</tr>
<tr>
<td>Forms inner</td>
<td>Fire port doors, steel</td>
</tr>
<tr>
<td>240 sq m</td>
<td>2</td>
</tr>
<tr>
<td>Forms outer</td>
<td>Air exhaust vents</td>
</tr>
<tr>
<td>335 sq m</td>
<td>2</td>
</tr>
<tr>
<td>Broken Stone</td>
<td>Pit cover</td>
</tr>
<tr>
<td>50 cu m</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Bunks</td>
</tr>
<tr>
<td></td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>Bench</td>
</tr>
<tr>
<td></td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Manhole cover</td>
</tr>
<tr>
<td></td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Metal ladders</td>
</tr>
<tr>
<td></td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Covers</td>
</tr>
<tr>
<td></td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Periscope port</td>
</tr>
<tr>
<td></td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Drainage unit</td>
</tr>
<tr>
<td></td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Miscellaneous</td>
</tr>
<tr>
<td></td>
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</tr>
</tbody>
</table>
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II - PILLBOXES

FOR HMG
(A) LOW COVER, 1 MG (FRONTAL FIRE)

PLAN CROSS SECTION

Communication trench

Concrete drain

Air vent

Bench

Firing room

Precast concrete slab

Waterproof mortaring

Removable door (for protection against seepage)

SECTION A-A

Steel door

Firing room

Reinforcing rods: 16mm dia., c-c .20
16mm dia., c-c .40

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II - PILLBOXES

FOR HMG (Continued)
(B) 2 MG (FRONTAL FIRE)

PLAN CROSS SECTION

Air vent

Observation and communications room

Drain

Passageway

Door

Firing room

Steel door

Air intake

Hand-operated fan

Concrete drain

Reinforcing rods: 16mm dia., c-c .20
16mm dia., c-c .40
Notes:

1. This diagram shows a type of casemate employing Type 92 MG.

2. Fire port detail is on another diagram.

3. Camouflage fire port wall with a net. If conditions warrant, the amount of exposed surface may be reduced by using a pre-cast concrete slab; this should be easily removable and should present no hindrance to firing even if demolished.

4. The cover for the Firing Room of the low cover pillbox is to be made of concrete, ratio 1:1:2, reinforcement 5%.

5. The disposition of foundation, drainage, and entrance should take into account factors of local terrain and soil.

I. Low Cover, One MG, Frontal Fire

Concrete...........30 cu m
Steel Reinforcement.....1 ton
Forms { inner........42 sq m
        outer........50 sq m
Broken Stone........8 cu m

Steel door, entrance.....1
Exhaust.........................1
Drainage unit..............1

II. Two MG, Frontal Fire

Concrete........135 cu m
Steel Reinforcement.....5 tons
Forms { inner........125 sq m
        outer........140 sq m
Broken Stone........20 cu m

Entrance door, steel.....1
Entrance door, wooden....4
Entrance door, steel? Steel cover........1
Exhaust.........................1
Intake
Metal ladder...............1
Drainage unit.............1
Miscellaneous...........1
II - PILLOWS

FOR ENFILADE FIRE ON ROAD IN DENSELY WOODED AREA

Concrete: 9 cu m
Form: 40 sq m

PLAN CROSS SECTION

Reinforcing rods: 16mm dia., c-c 20
FOR ENFILADE FIRE ON ROAD IN DENSELY WOODED AREA (Continued)

SECTION C-C

Reinforcing rods: 16mm dia., c-c .20

Notes:

1. The facing of the fire port should correspond to the direction of the road and the line of fire.

2. Light and heavy machine guns and rifles can all be used.

3. The road is of the rotary type; the width of the road at the rotary section (TN: SHUI NO RO) should be greater than 4m.
1. The thickness of the wall toward the enemy is 50cm, that of the opposite wall 30cm.

2. Provision is made for the reduction of noise in the firing room.
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III - CASEMATES

FOR ONE RAPID-FIRE GUN /TYPE II/

PLAN CROSS SECTION

- Air vent .20 x .50
- Tool racks
- Shelf for gun tools
- Gun rack
- Ammunition (600 rounds)
- Conduit for light and communication wires
- Steel door
- Conduit for light and communication wires
- Folding bunks (4 tiers)
- Fan room
- Air intake
- Fan
- Metal footholds
- Reinforcing rods: 16mm dia., c-c .20
  16mm dia., c-c .40

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III - CASEMATES

FOR ONE RAPID-FIRE GUN /TYPE II/ (Continued)

SECTION A-A

Reinforcing rods: 16mm dia., c-c .20
16mm dia., c-c .40
This diagram shows a casemate employing a Type 94 37mm gun, with a horizontal traverse of 45°, and an angle of elevation of 5°, and an angle of depression of 5°.

2. Place one wooden box for empty cartridge cases in the firing room (50 round capacity).

3. Disposition of foundation, drainage, and entrances should take into account factors of local terrain and soil.

**List of Required Materials**

<table>
<thead>
<tr>
<th>Material</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Concrete</td>
<td>117 cu m</td>
</tr>
<tr>
<td>Steel reinforcement</td>
<td>42 ton</td>
</tr>
<tr>
<td>Forms (inner)</td>
<td>105 sq m</td>
</tr>
<tr>
<td>Forms (outer)</td>
<td>135 sq m</td>
</tr>
<tr>
<td>Broken stone</td>
<td>20 cu m</td>
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</tbody>
</table>

**Accessories**

<table>
<thead>
<tr>
<th>Accessory</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Steel door, fireport</td>
<td>1</td>
</tr>
<tr>
<td>Steel doors, entrance</td>
<td>2</td>
</tr>
<tr>
<td>Steel cover</td>
<td>1</td>
</tr>
<tr>
<td>Wheel platforms</td>
<td>2</td>
</tr>
<tr>
<td>Trail spade ditches</td>
<td>2</td>
</tr>
<tr>
<td>Metal ladder</td>
<td>1</td>
</tr>
<tr>
<td>Gun tool rack</td>
<td>1</td>
</tr>
<tr>
<td>Tool rack</td>
<td>1</td>
</tr>
<tr>
<td>Rifle rack</td>
<td>1</td>
</tr>
<tr>
<td>Intake</td>
<td>1</td>
</tr>
<tr>
<td>Exhaust</td>
<td>1</td>
</tr>
<tr>
<td>Speaking tube</td>
<td>1</td>
</tr>
<tr>
<td>Drainage unit</td>
<td>1</td>
</tr>
<tr>
<td>Floating bunk</td>
<td>1</td>
</tr>
<tr>
<td>Miscellaneous</td>
<td>1</td>
</tr>
</tbody>
</table>
III - CASEMATES

FOR ONE REGIMENTAL GUN /TYPE I/

Concrete: 50 cu m
Form: 148 sq m

PLAN CROSS SECTION

Reinforcing rods: 16mm dia., c-c .20
III - CASEMATES

FOR ONE REGIMENTAL GUN /TYPE I/ (Continued)

SECTION A-A

Observation post

Camouflage net

Rubble

Reinforcing rods: 16mm dia., c-c .20
III - CASEMATES

FOR ONE REGIMENTAL GUN / TYPE II/

PLAN CROSS SECTION

- Firing room
- Shelves for gun tools
- Drain
- Removable wooden cover (exterior faced with steel plate)
- Fixed firing lines
- Folding bunks (2 tiers)
- Conduit for light and communication wires (.05 dia)
- Communications room
- Ready ammo
- Fan
III - CASEMATES

FOR ONE REGIMENTAL GUN /TYPE II/ (Continued)

SECTION A-A

Steel cover

Air vent

Camouflage net

SECTION B-B

Observation room

Steel cover

Communications room

Firing room

Communications room

Fan room

Ready ammo

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Notes:

1. This casemate may be used for both Type 94 and Type 41 Mt Gun; however, angles of elevation and depression must be calculated to meet the specifications of the particular gun employed.

2. The detail of the fire port is shown in a separate diagram.

3. The Firing Room is furnished with an empty cartridge case box, covered; capacity 50 rounds.

4. The disposition of foundation, drainage, entrances should take into account factors of local terrain and soil.

<table>
<thead>
<tr>
<th>List of Required Materials</th>
<th>Accessories</th>
</tr>
</thead>
<tbody>
<tr>
<td>Concrete.................145 cu m</td>
<td>Steel cover..............1</td>
</tr>
<tr>
<td>Steel Reinforcement.....5.4 tons</td>
<td>Fire port door, steel....1</td>
</tr>
<tr>
<td>Forms {inner............155 sq m</td>
<td>Fire port door, wooden...1</td>
</tr>
<tr>
<td>{outer............180 sq m</td>
<td>Trail spade ditch......1</td>
</tr>
<tr>
<td>Broken Stone............25 cu m</td>
<td>Entrance doors, steel...3</td>
</tr>
<tr>
<td></td>
<td>Metal ladder..........1</td>
</tr>
<tr>
<td></td>
<td>Shelves for firing tools.2</td>
</tr>
<tr>
<td></td>
<td>Communications Room desk.1</td>
</tr>
<tr>
<td></td>
<td>Trail circle platform.1</td>
</tr>
<tr>
<td></td>
<td>Folding bunks........4 men</td>
</tr>
<tr>
<td></td>
<td>Intake.............1</td>
</tr>
<tr>
<td></td>
<td>Exhaust...............1</td>
</tr>
<tr>
<td></td>
<td>Speaking tube.........1</td>
</tr>
<tr>
<td></td>
<td>Rifle and tool rack...1</td>
</tr>
<tr>
<td></td>
<td>Drainage unit........1</td>
</tr>
<tr>
<td></td>
<td>Miscellaneous........</td>
</tr>
</tbody>
</table>

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III - CASEMATES

FOR FIELD GUN

PLAN CROSS SECTION

SECTION A-A

Firing room has provision made for reduction of noise

SECTION B-B
EMBRASURE AND TRaverse PLATFORM OF FIELD GUN CASEMATE

(a) EMBRASURE AND BASE FOR TRAVERSE PLATFORM

PLAN CROSS SECTION

- Removable wooden cover - exterior faced with steel plate
- Drain
- Pine timber
- Limit of observation port
- Trough for trail spade
- Trough for traverse platform
- Fixed firing line
- Sound-reducing board
- Heel groove

1/50
III - CASEMATES

EMBRASURE AND TRAVERSE PLATFORM OF FIELD GUN CASEMATE

(A) EMBRASURE AND BASE FOR TRAVERSE PLATFORM (Continued)

-11° in case of type 90

\[ \frac{72}{70} \] in case of type 90

ELEVATION SECTION

Removable wooden cover - exterior faced with steel plate

Sound-reducing board

Limits of observation port

Trough for traverse platform

Pivot center

Pine timber

(B) INSIDE OF EMBRASURE

FRONT VIEW

Wheel groove

Sound-reducing board

\[ 1.50 \times 1.50 \]
III - CASEMATES

ELEVATION SECTION

Wheel block bolt
Wheel block
Base board
Screw
Beam
Wooden "roller"

PLAN CROSS SECTION

"Inset roller"
Wheel center

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-50-
1. This diagram shows the standard construction for employing Type 95, Type 90 and Modified Type 38 Field Gun without removal of wheels and establishes the angle of elevation appropriate to each gun.

2. In the type of casemate in this diagram the Type 95 Field Gun can fire at an angle of elevation of 17° and an angle of depression of 0°; the Type 90 Field Gun can fire at an angle of elevation of 11° and an angle of depression of 6°; the modified Type 38 Field Gun can fire at an angle of elevation of 15° and an angle of depression of 0°; within the observation port the angle of elevation of the Type 90 Field Gun is 5° and the angle of depression of the Modified Type 38 Field Gun is 6°.

3. Sound-reducing wall board is to be installed on the inside surface of the front wall.

4. The detail of the "inset roller" which is used to fix the wheels firmly is similar to the one used in the mountain gun casemate.

5. Use hard wood as much as possible.
IV - FIRE PORTS

DETAIL OF FIRE PORT - TYPE I

PLAN CROSS SECTION

Anchor bolt
Air vent
Steel plate

SECTION B-B

Camouflage net
Air vent
IV - FIRE PORTS

DETAIL OF FIRE PORT - TYPE II

PLAN CROSS SECTION

Position of MG supports

With firing angle of 45°, make front wall concave

SECTION C-C

Camouflage by adding layer of earth on top of ordinary plank

Air vent

Supports

Type I shows the type of port used for firing by inserting the gun muzzle into the fire port without using MG supports;
Type II shows the type used when MG supports are used.
FOR TYPE 28 FIELD GUN

PLAN CROSS SECTION

SECTION C-C

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UNCLASSIFIED

FOR TYPE 38 10cm CANNON

PLAN CROSS SECTION

SECTION B-B

UNCLASSIFIED
V-GUN PLATFORMS
FOR TYPE 89 15cm CANNON

PLAN CROSS SECTION

1/100

Base line

A

Blind drain (.20 dia)

Left field of fire

70°

Right field of fire

70°

Tile drain (.15 dia)
(for draining exterior)

Water-tight material

Gravel (10cm thick)

Gun ramp

3.00

Shells

Shells

Gravel fill (.20)

Gravel fill (.20)
V - GUN PLATFORMS

FOR TYPE 89 15cm CANNON (Continued)

SECTION A-A

Layer of stones/
dust bundle

R = 5.1265

2.50

5.96

1.20

1.30

1.20

2.0

8.92

3.08

30

30

130

Drain, .10 dia

Shells

Gravel fill (.20)

Half tile (.15 dia)

Tar paper

Drain, .10 dia
V - GUN PLATFORMS

Section leader's station

Signalman's station

Gun platform; reinforced layer 1m.

Section leader's station

ELEVATION SECTION

GUN PLATFORM; ELEVATION SECTION

TRANSVERSE SECTION

SECTION LEADER'S STATION

ELEVATION SECTION

Shells

Ready room

Powder

Dry trench

GUN PLATFORM; ELEVATION SECTION
V - GUN PLATFORMS

(WITH SHELTER) - FOR MEDIUM TRENCH MORTAR

PLAN CROSS SECTION

GUN PLATFORM, TRANSVERSE SECTION

LONGITUDINAL SECTION
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**GUN PLATFORMS**

(WITH SHELTER) - FOR TYPE 4.5 24cm HOWITZER

**PLAN CROSS SECTION**

- Shells
- Gun platform
- Powder
- Ready room
- Dry trench

**SECTION A-A**

- Metal gun platform; trench 1.20m deep

---

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(WITH SHELTER) - FOR TYPE 45 24cm HOWITZER (Continued)

SECTION B-B

Shells

(WITH SHELTER) - FOR TWO FIELD GUNS

FLANK CROSS SECTION

Ready ammo

Concrete

SECTION C-C

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VI - READY SHELTERS

FOR ONE RAPID-FIRE GUN

(Amount of Concrete: about 35 cu m)

PLAN CROSS SECTION

FOR HMG

(Amount of Concrete: about 27 cu m)

PLAN CROSS SECTION

SECTION B-B

Reinforcing rods: 16mm dia., c-c .20
1. Where seepage is likely to be a problem, provide for drainage by adding a layer of gravel on the roof and around the sides.

2. Disposition of foundation should take into consideration factors of local soil.

Reinforcing rods: 16mm dia., c-c .20
VI - READY SHELTERS

FOR TWO RAPID-FIRE GUNS / TYPE II /

PLAN CROSS SECTION

List of Required Materials:

Concrete...............175 cu m
Steel reinforcement... 35 tons
Forms {inner...........100 sq m
  outer............165 sq m
Broken Stone.......... 20 cu m

Accessories

Steel doors.......2
Wooden doors.....1
Gas curtain.......1
Bench............1
Intake...........1
Exhaust..........1
Drainage unit....1
Miscellaneous....

Reinforcing rods: 16mm dia., c-c .20
                   16mm dia., c-c .40

-67-
1. The diagram shows a shelter housing two Type 94 37mm rapid-fire guns.
2. This may be substituted for the customary Rapid-Fire Gun Emplacement.
3. Disposition of foundation, entrances, and drainage should take into account factors of local terrain and soil.

Reinforcing rods: 16mm dia., c-c .20
16mm dia., c-c .40
1. Diagram indicates a 2 gun shelter for Type 99 Field Guns.
2. Endeavor to conceal entrance with camouflage net.
3. Disposition of foundation, drainage, entrances, should take into account factors of local terrain and soil.
List of Required Materials

- Concrete: 1.00 cu m
- Steel reinforcement: 5.5 ton
- Forms (inner): 55 sq m
- Forms (outer): 220 sq m
- Broken stone: 33 cu m

Accessories

- Exhaust: 1
- Steel entrance doors: 2
- Folding bunks: 6
- Drainage unit: 1
- Miscellaneous: 1

-70-
At times when it is feared the magazine will be exploded by enemy shells, build it apart from shelter. Regardless of the disposition indicated in the diagram, the foundation is adapted to the terrain.

Reinforcing rods: 19mm dia., e-ø .20
VI - READY SHELTERS

FOR TYPE 89 15cm CANNON AND TRACTOR (Continued)

SECTION B-B

Double wooden doors

Gravel fill (.20)

Tile drain (.15 dia)

Wooden sliding doors

Half tile (.15 dia)

Note:

Shows type of shelter capable of housing gun without uncoupling tractor gear.

Reinforcing rods: 19mm dia., c-c .20
VI - READY SHELTERS
FOR TYPE 89 15cm CANNON AND FOR TRACTOR

(A) CANNON HOUSING (Continued)

SECTION A-A

Concrete cover
Gravel fill (.20)
Tile drain
Double wooden doors

Air vent .30 x .40
(at right angles)
Gravel fill (.20)
Half tile (.15 dia)

Reinforcing rods: 19mm dia., c-c .20
VI - READY SHELTERS
FOR TYPE 89 15cm CANNON AND FOR TRACTOR
(A) CANNON HOUSING (Continued)

SECTION B-B

1. Type housing gun.
2. At times when it is feared the magazine will be exploded by enemy bombs, separate it from casemate.
3. Regardless of the disposition in the diagram, foundation is adopted to local terrain.

Reinforcing rods: 19mm dia., c-c .20
VI - READ SHELTERS

FOR TYPE 89 12 in CANNON AND FOR TRACTOR

(b) TRACTOR HOUSING

PLAN CROSS SECTION

- Tile drain (0.15)
- Double wooden doors
- Gravel fill (0.20)
- V-shaped drain
- Double decker bunks
- Wooden sliding doors
- Vehicle housing
- Equipment storage
- Lubricant storage
- Sand spreading
- Air vent
- Reinforcing rods: 19mm dia., @ 150mm c/c
**Air vent for lubricant storage**

**Double decker bunks**

**Concrete cover attached**

**Gravel fill (.20)**

**Half tile (.15 dia)**

**Air vent for lubricant storage, .30 x .40**

**Double wooden doors**

**Tile drain (.15 dia)**

**Gravel fill (.20)**

**Half tile (.15 dia)**

Reinforcing rods: 19mm dia., c-c .20
VI - READY SHELTERS

FOR TYPE 89 15cm CANNON AND TRACTOR

PLAN CROSS SECTION

Tile drains
Double wooden doors

V-shaped drain

Gravel fill (\(\geq 20\))

Ammo

Gun housing

Reinforcing rods: 19mm dia., c-c \(\geq 20\)
VI - READY SHELTERS

FOR TYPE 89 15cm CANNON AND TRACTOR (Continued)

SECTION A-A

Air vent (concrete cover attached)

Gravel fill (.20)

Half tile (.15 dia)

Reinforcing rods: 19mm dia., c-c .20
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VI - READY SHELTERS

FOR TYPE S9 15cm CANNON AND TRACTOR (Continued)

SECTION B-B

Gravel fill (20)

Half tile (1.5 dia.)

0.8m thick

Concrete slab

Reinforcing rods: 19mm dia., c-c = 20

0.8m thick

Cement bond

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VI - READY SHELTERS

FOR TYPE 89 15cm CANNON AND FOR TRACTOR

(A) CANNON HOUSING (Continued)

SECTION A-A

Concrete cover attached

Gravel fill (.20)

Air vent (.30 x .40) at right angles

Gravel fill (.20)

Half tile (.15 dia)

Double wooden doors

Tile drain (.15 dia)

Reinforcing rods: 19mm dia., c-c .20
VI - READY SHELTERS

FOR TYPE 82 15cm CANNON AND FOR TRACTOR

(A) CANNON HOUSING (Continued)

SECTION B-B

Explanatory Notes:

1. At times when it is feared that the magazine will be exploded by enemy bombs, build it apart.

2. Regardless of the disposition in the diagram, the foundation is adapted to the terrain.
VI - READY SHELTERS

FOR TYPE 89 15cm CANNON AND FOR TRACTOR

(B) TRACTOR HOUSING (Continued)

SECTION C-C

Air vent for lubricant storage (.30 x .40) at right angles

SECTION D-D

Air vent for lubricant storage (.30 x .40) at right angles

Concrete cover attached

Gravel fill (.20)

Half tile (.15 dia)

Double wooden door

Tile drain (.15 dia)

Reinforcing rods: 19mm dia., c-c .20

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VII - OBSERVATION POSTS

/TYPE I/

PLAN CROSS SECTION

Communication trench
Conduit for light and communication wires
Rifle rack
Steel door
Bench

Catch basin

Filter attachment
Tool rack
Wooden sliding door

Speaking tubes

Drain
Desk (for communications)

Reinforcing rods: 16mm dia., c-c .20
16mm dia., c-c .40