

1. turn 0
 - (a) Deploy: Turret and upgrade at $\{[3,12],[24,12],[10,10],[17,10]\}$; Wall at $\{[2,12],[2,13],[4,12],[23,12],[24,13],[25,12]\}$.
 - (b) Delete: $\{[2,12],[2,13],[4,12],[23,12],[24,13],[25,12]\}$
2. turn 1
 - (a) Deploy: Wall at $\{[1,13],[2,12],[3,13],[24,13],[25,12],[26,13]\}$, Support at $[17,6]$, **7** scout at $[20,6]$.
 - (b) Delete: $\{[1,13],[2,12],[3,13],[24,13],[25,12],[26,13],[17,6]\}$.
3. turn 2
 - (a) Deploy: Wall at $\{[4,11],[5,10],[6,9],[7,8],[8,7],[9,6],[10,5],[11,4],[12,3],[13,2],[14,2]\}$, $\{[15,3],[16,4],[17,5],[18,6],[19,7],[20,8]\}$, $\{[0,13],[1,13],[2,13],[26,13],[27,13]\}$. Interceptor at $\{[22,8],[23,9]\}$.
 - (b) Delete: $\{[0,13],[1,13],[2,13],[26,13],[27,13],[10,10],[17,10]\}$.
4. turn 3
 - (a) Deploy: Wall at $[0,13],[1,13],[2,13],[4,13],[24,13],[25,13],[26,13],[27,13]$, $\{[4,12],[21,12],[22,12],[23,12],[19,9],[19,10],[20,10]\}$. Turret at $\{[20,9],[22,11]\}$ **2** Interceptor at $[22,8]$.
 - (b) Delete: $\{[0,13],[1,13],[2,13],[4,13],[24,13],[25,13],[26,13],[27,13]\}$, $\{[4,12],[21,12],[22,12],[23,12],[19,9],[19,10],[20,10]\}$, $\{[20,9],[22,11]\}$.
5. turn 4
 - (a) Deploy: Turret and upgrade at $[20,9]$. Turret at $[22,11]$. wall at $\{[0,13],[1,13],[2,13],[4,13],[24,13],[25,13],[26,13],[27,13]\}$, $\{[4,12],[23,12]\}$. **2** Interceptor at $[22,8]$.
 - (b) Delete: $\{[0,13],[1,13],[2,13],[4,13],[24,13],[25,13],[26,13],[27,13]\}$, $\{[4,12],[23,12]\}$.
6. Deploy strategy starting from turn 5
 - (a) self repair 7(a) to 7(f).
 - (b) 9(a) to 9(b) to determine offense or not, active defense or not.

- (c) Define $S(MP_l, SP_l, H, MP_o, SP_o, Ho) = MP_r$. MP_l, SP_l, H are my MP left, SP left and health(defined in step 9), MP_o, SP_o, Ho are opponents' MP,SP and health. MP_r is the MP used for more construction, the order of construction is in 7(g).

7. Static Defense starting from turn 5

- (a) self-repair-1: make sure those walls exist and delete those with less than half life and rebuild it next turn:(equally important)
 $\{[4,11],[5,10],[6,9],[7,8],[8,7],[9,6],[10,5],[11,4],[12,3],[13,2],[14,2]\}$,
 $\{[15,3],[16,4],[17,5],[18,6],[19,7],[20,8]\}$
- (b) self-repair-2: make sure those walls exist and delete those with less than half life and rebuild it next turn:(equally important, if resources are limited, build them with upgrade)

Turret update[22,12]
 Wall $\{[4,13],[5,13],[6,13],[17,12],[18,12],[19,12],[17,11][18,11]\}$
 Wall upgrade $\{[4,13],[5,13],[6,13],[17,12],[18,12],[19,12],[17,11][18,11]\}$

8. Active Defense from turn 5

(a) (left)

if the Opponent's Mobile points is like: $H_o < 15$ or **if** $\{[1,14],[2,14]\}$
 or $\{[1,14],[1,15]\}$ are not empty or deleted

build wall and delete them:

$\{[0,13],[1,13]\}$.

if the Opponent's Mobile points is like: $15 \leq$

$H_o < 25$ and if $\{[1,14],[2,14]\}$ or $\{[1,14],[1,15]\}$ are empty or deleted.

build wall and delete them:

$\{[1,13]\}$.

build wall upgraded and delete them:

$\{[0,13]\}$.

if the Opponent's Mobile points is like: $25 \leq H_o < 35$ and if
 $\{[1,14],[2,14]\}$ or $\{[1,14],[1,15]\}$ are empty or deleted.

build wall and delete them:

$\{[1,13]\}$.

build wall upgraded and delete them:

$\{[0,13]\}$

build Turret and delete them:

$\{[1,12]\}$.

if the Opponent's Mobile points is like: $35 \leq H_o < 45$ and if
 $\{[1,14],[2,14]\}$ or $\{[1,14],[1,15]\}$ are empty or deleted.

build wall and delete them:

$\{[1,13]\}$.

build wall upgraded and delete them:

$\{[0,13]\}$

build updated Turret and delete them:

$\{[1,12]\}$.

if the Opponent's Mobile points is like: $45 \leq H_o$ and if
 $\{[1,14],[2,14]\}$ or $\{[1,14],[1,15]\}$ are empty or deleted.

build wall and delete them:

$\{[1,13]\}$.

build wall upgraded and delete them:
 $\{[0,13]\}$
 build updated Turret and delete them:
 $\{[1,12],[2,12]\}$.

(b) (right)

if the Opponent's Mobile points is like: $H_o < 15$ or **if** $\{[26,14],[2,15]\}$
 or $\{[26,14],[25,15]\}$ are not empty or deleted

build wall and delete them:(right)
 $\{[26,13],[27,13]\}$.

if the Opponent's Mobile points is like: $15 \leq H_o < 25$ and if
 $\{[26,14],[2,15]\}$ or $\{[26,14],[25,15]\}$ are empty or deleted.

build wall and delete them:
 $\{[26,13]\}$.

build wall upgraded and delete them:
 $\{[27,13]\}$.

if the Opponent's Mobile points is like: $25 \leq H_o < 35$ and if
 $\{[26,14],[2,15]\}$ or $\{[26,14],[25,15]\}$ are empty or deleted.

build wall and delete them:
 $\{[26,13]\}$.

build wall upgraded and delete them:
 $\{[27,13]\}$.

build Turret and delete them:
 $\{[26,12]\}$.

if the Opponent's Mobile points is like: $35 \leq H_o < 45$ and if
 $\{[26,14],[2,15]\}$ or $\{[26,14],[25,15]\}$ are empty or deleted.

build wall and delete them:
 $\{[26,13]\}$.

build wall upgraded and delete them:
 $\{[27,13]\}$.

build Turret upgraded and delete them:
 $\{[26,12]\}$.

if the Opponent's Mobile points is like: $45 \leq H_o$ and if
 $\{[26,14],[2,15]\}$ or $\{[26,14],[25,15]\}$ are empty or deleted.

build wall and delete them:
 $\{[26,13]\}$.

build wall upgraded and delete them:
 $\{[27,13]\}$.

build Turret upgraded and delete them:
 $\{[26,12],[27,12]\}$.

9. Offense

- (a) define x = total number of upgraded Turret in $\{[1,15],[2,15]\}$, y = total number of upgraded Turret in $\{[1,14],[2,14] [3,14]\}$, z = total number of Turret(not upgraded) in $\{[1,15],[2,15],[1,14],[2,14] [3,14]\}$. w is the status of $[0,14]$. ($w=0$ represents empty grid, $w=1$ represents wall, $w = 2$ represents upgraded wall).

define \bar{x} = total number of upgraded Turret in $\{[25,15],[26,15]\}$, \bar{y} = total number of upgraded Turret in $\{[24,14],[25,14],[26,14]\}$, \bar{z} = total number of Turret(not upgraded) in $\{[25,15],[26,15],[24,14],[25,14] [26,14]\}$. \bar{w} is the status of $[27,14]$. ($\bar{w}=0$ represents empty grid, $\bar{w}=1$ represents wall, $\bar{w} = 2$ represents upgraded wall).

MP is my mobile points, SP is my structure points. Define $O(x, y, z, \bar{x}, \bar{y}, \bar{z}, w, \bar{w}, MP, SP, H, R) = (a, b, c, d, e, f, MP_l, SP_l)$, where a is the first round scout needed, b is the second round scout needed, c is the support needed, d is the Demolisher needed, e is the Interceptor needed. f controls the position of scout. MP_l is the MP left after deploy offense or active defense. SP_l is the SP left after deploy offense or active defense. H is my health. R is the number of turn.

- (b) If $d \neq 0$ or $e \neq 0$, put Demolisher at $[15,1]$ and Interceptor at $[19,5]$. If $c \neq 0$, put support in $\{[13,3],[14,3],[15,4],[16,5],[17,6],[18,7],[14,4],[15,5],[16,6],[17,7]\}$ orderly.
- (c) If $f = 0$, keep both left and right active defense. If $f = 1$, put a number of scouts at $[11,2]$ and b number of scouts at $[10,3]$ and Stop the right active defense(defined in 8(b)) for 1 turn,keep the left active defense. If $a \neq 0$ or $b \neq 0$ and $f = 2$, put a number of scouts at $[19,5]$ and b number of scouts at $[20,6]$ and Stop the left active defense(defined in 8(a)) for 1 turn,keep the right active defense.