

## **PID 100081 (D03-BH-FY2021 (B))**

### **Structure ASD-89-4.31**

Item 513 - Structural Steel Members, Level UF, As Per Plan  
stiffeners at forward beam 1:

$$\begin{aligned}\text{Area} &= (31.375 \text{ IN} \times 3.875 \text{ IN}) + (((31.375 \text{ IN} + 26.375 \text{ IN})/2) \times 1 \text{ IN}) \\ &= 121.578 \text{ SQ IN} + 28.875 \text{ SQ IN} \\ &= 150.453 \text{ SQ IN} \times (1/144) = 1.045 \text{ SF}\end{aligned}$$

$$\text{Volume} = 1.045 \text{ SF} \times (0.625 \text{ IN} \times (1/12)) = 0.054 \text{ CF}$$

$$\text{Weight} = 0.054 \text{ CF} \times 490 \text{ LB/CF} = 26.46 \text{ LB} \times 2 \text{ each} = 52.92 \text{ LB}$$

### **Structure ERI-13-3.67**

Item 513 - Structural Steel Members, Level UF, As Per Plan  
stiffeners at forward beam 1:

$$\begin{aligned}\text{Area} &= (25.5 \text{ IN} \times 3.25 \text{ IN}) + (((25.5 \text{ IN} + 19 \text{ IN})/2) \times 1 \text{ IN}) \\ &= 82.875 \text{ SQ IN} + 22.25 \text{ SQ IN} \\ &= 105.125 \text{ SQ IN} \times (1/144) = 0.730 \text{ SF}\end{aligned}$$

$$\text{Volume} = 0.730 \text{ SF} \times (0.625 \text{ IN} \times (1/12)) = 0.038 \text{ CF}$$

$$\text{Weight} = 0.038 \text{ CF} \times 490 \text{ LB/CF} = 18.62 \text{ LB} \times 2 \text{ each} = 37.24 \text{ LB}$$

web plate at forward beam 1:

$$\text{Area} = (22 \text{ IN} \times (1/12)) \times (11 \text{ IN} \times (1/12)) = 1.68 \text{ SF}$$

$$\text{Volume} = 1.68 \text{ SF} \times (0.5 \text{ IN} \times (1/12)) = 0.07 \text{ CF}$$

$$\text{weight} = 0.07 \text{ CF} \times 490 \text{ LB/CF} = 34.3 \text{ LB}$$

$$\text{total} = 37 \text{ LB} + 34 \text{ LB} = 71 \text{ LB}$$

### **Structure ERI-101-6.20**

Item 513 - Structural Steel Members, Level UF, As Per Plan  
web plates:

$$\text{Volume} = (15.5 \text{ IN} \times (1/12)) \times (9 \text{ IN} \times (1/12)) \times (0.375 \text{ IN} \times (1/12)) = 0.030 \text{ CF}$$

$$\text{Weight} = 0.030 \text{ CF} \times 490 \text{ LB/CF} \times 2 \text{ each} = 29.40 \text{ LB}$$

## **Structure HUR-250-4.92**

Item 513 - Structural Steel Members, Level UF, As Per Plan  
steel bar:

$$\text{Volume} = (2 \text{ IN} \times (1/12)) \times (1.25 \text{ IN} \times (1/12)) \times 6 \text{ FT} = 0.104 \text{ CF}$$

$$\text{Weight} = 0.104 \text{ CF} \times 490 \text{ LB/CF} = 50.96 \text{ LB}$$

## **Structure HUR-303-1.97**

Item 513 - Structural Steel Members, Level UF, As Per Plan  
stiffeners:

$$\text{Area} = (34 \text{ IN} \times 4.125 \text{ IN}) + (((34 \text{ IN} + 29 \text{ IN})/2) \times 1 \text{ IN})$$

$$= 140.25 \text{ SQ IN} + 31.5 \text{ SQ IN}$$

$$= 171.75 \text{ SQ IN} \times (1/144) = 1.193 \text{ SF}$$

$$\text{Volume} = 1.193 \text{ SF} \times (0.625 \text{ IN} \times (1/12)) = 0.062 \text{ CF}$$

$$\text{Weight} = 0.062 \text{ CF} \times 490 \text{ LB/CF} = 30.38 \text{ LB} \times 2 \text{ each} \times 4 \text{ locations} = 243.04 \text{ LB}$$

web plate at forward beam 5:

$$\text{Volume} = (10 \text{ IN} \times (1/12)) \times (12 \text{ IN} \times (1/12)) \times (0.625 \text{ IN} \times (1/12)) = 0.043 \text{ CF}$$

$$\text{Weight} = 0.043 \text{ CF} \times 490 \text{ LB/CF} = 21.27 \text{ LB}$$

$$\text{total} = 243.04 \text{ LB} + 21.27 \text{ LB} = 264.31 \text{ LB}$$